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THE
THERMÆ
ROMANO-BRITANNICÆ
BY
DR. WOLLASTON

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THERMÆ ROMANO-BRITANNICÆ.

A
SHORT DESCRIPTION
OF THE
THERMÆ ROMANO-BRITANNICÆ,
OR THE
ROMAN BATHS

FOUND IN
ITALY, BRITAIN, FRANCE, SWITZERLAND, &c. &c.

WITH SOME NOTICES
OF THE MOSAICS AND PAINTINGS WHICH FORMED A PART
OF THEIR DECORATIONS,
ESPECIALLY OF THE THERMÆ OF TITUS AND CONSTANTINE.

BY
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1864.

P R E F A C E .

IN endeavouring to give some brief account of the ancient Roman Thermæ, I was surprised to find how meagre and scattered were the materials of information. Though much has been written on the construction of the Roman Bath by the learned Cameron, yet the history of the British Baths has never been attempted in a comprehensive manner. Detached works on a few of the British Thermæ no doubt exist, but for the most part they are not readily accessible. Lysons' large folios are seldom to be met with, which contain interesting accounts of several Baths, found at Bignor, Woodchester, and other places. I am aware that I have omitted to mention several of the Ruins of ancient Baths, both British and Continental; but my object was rather to show the identity of structure of the Roman Bath found in Britain, Italy, France, Switzerland, Germany, &c., and I have collected a sufficient number to answer my purpose. My intention, moreover, is to exhibit the Archæological and Decorative features of the Baths, rather than to elucidate their Medical Properties; though I have selected a few pages from professional writers, with a view to explain the advantages of the Hot-Air Bath as a valuable Medical Agent, and to suggest the expediency of building such Baths more extensively throughout the kingdom.

My official position in Turkey as Physician on the Medical Staff of the British Army, enabled me to test the efficacy of the Bath as a Therapeutic agent; while a residence of many months in Rome gave me abundant leisure to examine the ruins of the ancient Thermæ of Diocletian, of Caracalla, of Titus, and others.

N.B. I have a large collection of Drawings, with which I could have illustrated my subject, by a series of Lithographical and Chromo-lithographical representations of the Ancient Thermæ, and the numerous Mosaics and Fresco-paintings found in them, in Italy, Britain, and other countries. But as the cost would be considerable, I am disposed to wait, to ascertain if there be any demand for such illustrations.

R. W.

THERMÆ ROMANO-BRITANNICÆ.

"Quid sit futurum cras, fuge quaerere, et
Quem fors dierum cumque dabit, lucro
Appone; nec dulces BALNEAS,*
Sperne, puer, neque tu choreas."

Horatius, lib. 1, od. ix.

"Quicquid sub terris est, in apricum proferat aetas."—*Horatius.*

In the fascinating historical Novel "The Last Days of Pompeii," by Sir Bulwer Lytton, Glaucus is made to exclaim, Well! let us to the BATHS! blest be he who invented Baths! But tell me, Glaucus, are the Baths at Rome really so magnificent? Glaucus turned and recognized Diomed; and suppressing a smile replied,—“Imagine all Pompeii converted into Baths, and then you will form some notion of the size of the imperial Thermæ of Rome, but a notion of the *size* only. Imagine every entertainment for mind and body, enumerate all the gymnastic games our fathers have invented, repeat all the books that Italy and Greece have produced, suppose places for all these games, admirers for all these works, add to these, Baths of the vastest size, the most complicated construction, intersperse the whole with gardens, theatres, porticos, and schools; suppose in one word a City of the Gods composed but of palaces and public edifices, and you may form some faint idea of the Glories of the great Thermæ of Imperial Rome.”

Such is the grandiloquent description of one of our most refined writers—but his protraiture of the magnificence of the ancient Roman Thermæ is not more gorgeous than faithful, however apparently exaggerated. During the reign of the Cæsars,—from Augustus to Constantine, the world had never seen grander buildings than the wonderful Thermæ of Imperial Rome. The burst of admiration from the lips of Glaucus was a just tribute to national greatness in the construction of these luxurious and favourite Thermæ.

* The author has taken a liberty with Horace in substituting the word "*Balneas*" instead of "*Amores*"—a violation of accuracy, perhaps pardonable, as the quotation seemed applicable to the subject.

The Romans were indebted to the Greeks for their knowledge of this important Therapeutic agent. The graphic description in which Hippocrates the Father of Medicine has recorded the diseases of his time and country, and the means of their alleviation, commands our admiration for the correctness of his observations, and the sagacity of his remarks. In a comparatively simple state of manners, Hippocrates, and the Physicians of his age, resorted to the most obvious means of curing disease; principally in the use of herbs possessing mild powers, and in the use of water. The most natural Hydropathic Establishments were the pellucid stream and the briny sea; while experience soon demonstrated the efficacy of adding warmth, as means, in the cure of painful wounds and disorders. Fomentations of hot water, cataplasms of herbs, warm drinks, warm-water *baths*, and finally *Hot-Air Baths* became successively the chief remedies for the ills of life in the restoration of health.

The *Thermæ* or *Hot-Baths* were established among the Greeks and Romans as a permanent Institution: a just appreciation of the *Hot-Air Bath* has from that day descended to posterity, even to our own times: though unhappily not in our own country. The application of warmth to wounds and disease, is almost instinctive; and personal experience soon realizes the comfort and amelioration of our feelings from its use. As a medicinal agent, in the healing of many diseases, the sanction of universal testimony has proved its excellence. Surrounding nations, especially those, the climate and geographical position of which somewhat resembled that of Greece, seem to have known early the use of *Baths* of Water and of *Hot-Air*.

In India, Phœnicia, and Egypt, the *Bath*, under various modifications, was employed as a remedial agent, as well as a mode of cleansing the body. Even barbarous nations have resorted to *Heated Air* as means of cure: the aboriginal Peruvians, Mexicans, North American Indians, New Zealanders, Patagonians, and Laplanders, are said to have been well acquainted with the properties of Vapour and Heated Air. The restorative virtues of the *Hot-Air Bath*, as well as that of warm water, were well known to the combatants of the Greek Games after violent exertions in the Olympic Games, of charioteering, wrestling, boxing, running, and other martial exercises. When exertion caused exhaustion, the balmy influence of the *Bath* soothed the wearied muscles, calmed the excitement of the brain, lulled the passions stimulated by rivalry, and afforded repose to the agitated warriors. We have no very distinct account of the progress of the *Baths* during the Regal and Republican periods of Roman History; but it is evident that the Carthaginians two or three centuries before their conquest had built *Baths*, and that they were copied from those of the Greeks. When the city of Carthage was destroyed, the public buildings, the Temples, Palaces, Theatres, and *Baths*, were of the same style and character as those built in Rome. Dr. Davis in his recent instructive work

on Carthage has described the ruins of *Baths* in that city; the construction, size, and appearance of the chambers—the hypocausts and ornaments indicate the same style as those of the *Roman* and *Pompeian Thermæ*.

The full development of the *Thermæ* was reserved for the Augustan and succeeding ages. Augustus Cæsar was the patron of Art, and brought the treasures of Greece and Egypt to adorn the city of Rome: a saying of his is recorded, that “he found Rome made of bricks, and left it adorned with stone and marble.” In his reign the *Consul Agrippa* built the most magnificent *Thermæ*, which he dedicated to the Roman people; the present *Pantheon* formed a part of them. In the centre is a grand and lofty dome 120 feet in diameter at its base; its walls were lined with marbles of every variety of colour, brought from the eastern dominions, beautiful specimens of the most costly and rare kinds, the rose-antique, the giallo-antique and verd-antique. Porphyry cut into different patterns formed the floor which remains imperishable to this day. The eight lofty Corinthian Columns of Egyptain granite which support the Pediment are proofs of the grandeur and durability of this splendid monument of the genius and taste of the Roman Consul. In the reign of Augustus Cæsar, hundreds of minor baths were built at the public expense, as well as by the private liberality of enlightened and generous Patricians. All these have perished or are in ruins, save only that one great glorious structure the *Bath of Agrippa*, which continues to attest the value set on *Public Health* by the munificent Consul.

The structure now called *The Pantheon* is one of the most beautiful and most perfect of the ancient buildings in Rome. When Roman greatness reached its summit, successive Emperors vied with each other in the construction of *Thermæ* for the public use. The city of Rome was enriched by such stupendous structures, adorned with such precious marbles and statuary, that they were the grandest monuments and the glory of the age, and constituted an epoch conspicuous for the development of *Sanitary measures* for the promotion of public health, of no mean importance in the estimation of the Romans: while a public officer of high dignity was appointed over the management of the *Baths*. Hygeia, the goddess of health, and Æsculapius, the god of medicine, were invoked as the presiding deities of those buildings; and their statues were invariably placed in the atrium or entrance hall of the edifices. These same deities were discovered also in the Baths of Carthage, an evidence of the importance attached to the supposed guardians of the public health.

It is a very remarkable circumstance, that the splendid ruins at Rome which continue to interest the traveller, the archæologist and historian, the *Thermæ* of Titus, of Hadrian, of Caracalla, Diocletian, and Constantine were built by those very Emperors who had once trodden the land of Britain. The fact of their temporary residence in this kingdom may tend

to explain the circumstance why the Roman and Anglo-Roman *Thermæ* were identical in structure and similar in embellishment. Wherever the Romans carried their victorious arms, they established their Laws, Religion, and Customs. The British inhabitants were little better than savages, and their conquerors had no difficulty in subjugating the whole country, making fine broad roads, from one end of the kingdom to the other, keeping a line of communication from town to town, and camp to camp. Along these great high roads, Military Stations were fixed; the tessellated pavements found in the direction of the roads indicate the existence of those Villas where Generals and Prefects resided: attached to these Villas, were the ever accompanying and essential adjuncts of Roman life, the *Thermæ*, both public and private.

Before I narrate the history and characteristics of the British *Thermæ*, it may be, perhaps, proper to mention something of their prototypes in Italy, as to their mode of construction and adornment. Whenever the traveller bends his steps into the arena of ancient Rome, few ruins appear so imposing as those of the *Thermæ*. The gigantic Colosseum first arrests his attention, as well as the Forum, and the Arches of Constantine, Severus, and Titus; but these latter are comparatively small buildings. As he advances into the gardens of Diocletian and Caracalla, and sees the enormous ruins of these majestic *Thermæ*, and the extensive area of ground which encloses them, he becomes sensibly and profoundly impressed with the sentiment that the Roman mind was imbued with grand conceptions; and that it deemed the *Bath*, with its games and exercises, worthy of a National dignity. Standing in the midst of these ruins, he feels the emotions of his mind more seriously impressed, when he surveys the stupendous masses, and reflects on the wisdom of a Great People, who regarded sanitary institutions in the true Spirit of Philanthropy.

So magnificent indeed were the Public Baths, that historians use the most grandiloquent language in describing them. The Egyptian granite was beautifully in-laid with the precious green marbles of Numidia. Statues of Emperors, Generals, Philosophers, and Poets ornamented the halls; and pavements in gorgeous colours, representing the Mythology of the Greeks, the Roman games, and battles of the gods; and heroes, birds, beasts, fishes, and monsters of all kinds, griffins, sea-lions, sea-devils, and imaginary beings depicted in Mosaics. Gibbon, in his great work, "The Decline and Fall of the Roman Empire," observes, "the walls of the lofty apartment were covered with curious Mosaics, that imitated the art of the pencil in the elegance of design, and the variety of colours. It was the ambition of the Roman Emperors to construct these superb *Thermæ* either to conciliate the people, or to exhibit their own power and riches. They were the common luxury of all classes, in them the people found their chief amusements; music and dancing, gymnastics, and gladiatorial exhibitions often accompanied the recreations of the Sudatory and Piscina."

Thus were the BATHS honoured : we shall not be surprised, therefore, to find that from the time of Augustus Cæsar, successive Emperors and Generals vied with each other in erecting them for the people.

The ruins of the Baths of Titus, Hadrian, Caracalla, Diocletian, the Antonines, and of Constantine, still attest the imperishable glory of their reigns. The Institution of the Bath was not confined to the city of Rome : all Italy and other countries adopted that of the capital. The Emperor Diocletian built Baths on a large scale in his new capital at Milan, when he ceased to make Rome the imperial City ; and at Nicomedia, now called *Ismid*, (a city built by Alexander the Great, at the extreme end of the sea of Marmora,) there still exist massive walls of the Palace, the reputed site of the Baths to which Diocletian resorted when he resigned the Purple after the fatigues, vexations, and disappointments of government, to enjoy repose and the benefits of the Bath. Gibbon again remarks—"Among the innumerable monuments of architecture constructed by the Romans, how many have escaped the notice of history, how few have escaped the ravages of time ! The majestic ruins of *Thermæ*, still scattered over all Italy and the provinces, would be sufficient to prove that those countries were once the seats of a powerful and a polite empire, their greatness and their beauty deserve our attention ; but they are rendered more interesting, inasmuch as they were erected at the public expense, and intended for public utility." The most extraordinary facts respecting the style of structure and decoration of the Bath were brought to light in the excavations at Pompeii. The city, suddenly overpowered by a tremendous eruption of Lava from the craters of Vesuvius, sealed for 1700 years the actual condition of the city, when the buildings, houses, *Thermæ*, and their ornaments and implements were found precisely as when they were overwhelmed. In this state there can be no doubt that the exact form and characteristics of the *Thermæ* have been clearly made out. Vitruvius, an architect of the highest authority, has well described their structure, so as to leave no difficulty in recognizing them, when and wherever they have been found in other countries.

There is therefore a sure guide in distinguishing the *Thermæ* from other buildings ; chiefly, by the form and position of the fire-place, hypocausts and flues which heated the chambers, as well as the general distribution of the various apartments which together compose a complete Bath. A short description of one such as was found at Pompeii, attached to the house of Diomedes, and described by Vitruvius, may serve to elucidate the construction of those found in Britain.

The Roman Hot-Air Bath was either a square or circular building, with a dome, surmounting the Atrium or Frigidarium ; it contained four principal chambers, besides numerous other smaller ones, for especial purposes. The first is the *Vestiarium*, though often called the *Frigidarium*,

a room to undress in, of the natural temperature; the second is the warm chamber called the *Tepidarium*, a room preparatory to the hot-room; the third is the hot-chamber or *Sudatorium*, the principal chamber in which the perspiration is chiefly effected, and the process of shampooing performed; the fourth is the *Lavatorium*, in which the ablutions are made by means of warm or cold water or both. Other apartments were superadded for purposes of anointing and perfuming, for dressing and depilating the hair, cutting the nails and corns: frequently large saloons were attached for purposes of walking, for games and exercises, some probably, similar to our rackets, billiards, bagatelle, &c.: some for the purposes of refreshments, various beverages, and light repasts. This arrangement of the four principal apartments was universally adopted; though the use of certain terms, by different authors, has led to some confusion in the exact application of those terms to the particular apartments. The tesserae or mosaics of the principal apartments were made of differently-coloured marbles and stones, real or artificial, closely cemented together: the borders of the halls and corridors were variously decorated with braids or twists, termed *guilloche*, or made into wreaths resembling the leaves of the olive, vine, ivy, and laurel.

A concise account of the ordinary rooms of a Bath may be derived from those discovered in Pompeii, the general plan of which may serve to indicate the design of others. The Thermæ were usually approached through a grand entrance or hall, called the Atrium,—it was large, and served the purpose of walking in after the Bath had been completed: it was decorated, and honoured with the presence of the statues and busts of Æsculapius, Hippocrates, Hygeia, and other Divinities.

The *Frigidarium*, or grand hall, of the natural temperature, was a large circular apartment, 120 feet long, the walls of which were stuccoed and coloured with yellow, or red, or blue, of different shades. A lofty dome surmounted the structure, in the centre of which was an opening or window whence light and air were admitted. Below the cornice, painted red, a chariot race, in stucco, of Cupids, preceded by Cupids on horseback and on foot, was depicted; below the cornice was a carved frieze, on which are represented Lyres, Dolphins, Chimeras, and Vases, in relief, upon a red ground; on the ceiling was painted a winged child, or genius, riding on a Sea-horse, accompanied by another, preceded by a similar child leading two Dolphins: there were openings in the walls which answered the purpose of windows, and had glass in a frame inserted in them. The floor was of marble of various patterns—*mosaics*, representing subjects taken from mythology—animals, fishes, birds, and fabulous beings, in bright colours, so as to produce most curious and elegant pictures. A number of *Telamones*, or figures of old men, supported the cornice; in other instances *Caryatides* performed the same office: these *Telamones* were painted of a flesh-colour, some with, some without beards, and having girdles round

their waists. On the floor were pedestals on which were placed the busts of Gods and Goddesses, Emperors, Heroes, Senators, Philosophers, Generals, and distinguished men, and the full-length statues of Æsculapius the god of medicine, and Hygeia the goddess of health. From this apartment a doorway led into the *Tepidarium*, or warm room, which was intended to bring the bather into a partial state of perspiration, and to enable him, by a graduated process, to bear the greater heat of the *Sudatorium* or hot room. The bather then proceeded into the *Sudatorium*, the heat of which was elevated to such a degree as to make the perspiration burst forth profusely, and when in that state he was shampooed, or rubbed down by an attendant, and scraped by means of an instrument made of ivory, bone, or metal, called a *strigil*, which scraped off the scurf, impurities, and perspiration. In order to perform the process of shampooing, the patient was placed on a wooden bench: the rubbing and kneading of the flesh and extending the joints, which the Romans were fond of, were practised in this chamber; after which, the bather entered the *Lavatorium* or ablution room. Sometimes the Lavatorium consisted of a semicircular recess at the extremity of the former apartment,—sometimes it was a separate though contiguous chamber—here the patient was well washed from head to foot by copious ablutions of hot and then warm water. In this room a *Loutron*, a very large receptacle or basin, usually made of marble, porphyry, or granite, for entire immersion, was placed; it was seven or eight feet long, about three feet deep and three feet wide. Many of these superb granite and porphyry Baths, of enormous size, are in the Sculpture Museums of the Vatican and Louvre. The cold plunging bath or *Piscina*, used by the more vigorous in bracing the skin and muscles, was usually contiguous to the chamber where was the warm water bath. The cold bath was often so large that the bather could freely swim in it—this was particularly the case in the grand Thermæ of Rome. These Baths were well arranged, with such prudent economy of space and distribution of parts, and adorned with such classical elegance as to show clearly the intellect, the taste, and resources of ancient architects. The hypocaust or fire-place which heated the chambers, was placed on the ground under the flooring or *suspensura* of the hot and warm rooms; it was like a cellar, the roof of which was supported by pillars of stone or brick tiles, a foot square, two to three inches thick, and altogether three high, having at top and at bottom a larger and thicker tile. These pillars were rather more than two feet from each other: in the interspaces the fuel, consisting chiefly of wood, was placed. The flues or hollow tiles from their form, position, and number, constitute a prominent feature in the construction of the Bath. They are *distinctive*, in my opinion, of the *Sudatorium*; they are invariably found in the hot room where the perspiration is more effectually produced,—they are closely packed together, placed perpendicularly, and surround the walls of the hot chamber, and are generally four, five, or six feet above the pavement, and reaching down to the hypocaust below the *suspensura*

or floor, so that the heat emanating from them as well as from the flooring, should act by near contact on the patient's body, as the stucco-lining which covers their surface is thin, so as to allow the heat to radiate. They terminate in a general chimney, which carries off the smoke and redundant hot-air, and creates a thorough draught through the whole hypocaust. In proximity to the Frigidarium were two or three smaller rooms adapted to certain luxuries and habits of the people. In one the hair was combed and arranged, superfluous hairs removed by depilatory powders; in another the bather applied fragrant ointment to his body, and formerly very costly ointments of delicious scents were used. There have been hundreds of Baths probably equal to these in beauty of style, but they have perished by the desolation of time, and the rude hands of Barbarians. *Thermæ* of surpassing splendour have been built in every part of Italy; in many other countries subdued by the Romans—France, Spain, Germany, Switzerland, and Britain—wherever, in fact, the Romans carried civilization, they planted Temples for their gods, built villas or mansions for their Generals or Prefects, theatres for their amusement, and *Thermæ* for refreshment and luxury, as well as for healing disease.

The learned Cameron makes the following enumeration of the various apartments which were attached to the larger *Thermæ* at Rome, all of which were appropriated to particular purposes connected with the manners of the Romans:—

1. The Apodyterium—or Frigidarium—the dressing-room.
2. The Sphæristerium—generally round, for games and exercises.
3. The Capsarium—for the clothes of the bathers.
4. The Unctuarium—for anointing with perfumes.
5. The Conisterium—for powdering the body.
6. The Coreicum—for cutting corns, shaving, and depilating.
7. The Exedra—for Poets, Philosophers, Musicians, &c.
8. The Latrinarium.
9. The Laconicon—the extreme end of the Sudatorium, where was placed the Loutron or Labrum, a marble, granite, stone, or copper bath, large enough for immersion, and containing hot water, in which the bather washed after he had been shampooed, and before his entrance into the Piscina.
10. The Piscina was a cold water bath, fit for a plunge or for swimming, and oftentimes spacious.

“Ritus si placeant tibi Laconum
Contentus potes arido vapore,
Cruda vigne, Martisque mergi.”—*Martial*.

11. The Crypto-Porticus—a sort of covered way around the outside of the Baths, for walking exercise.

Before I begin an account of the *British Thermæ*, it will be as well to give a description of the structure of a very perfect ancient Bath, found in one of the *Lipari Islands* near *Sicily*: it is described by Captain Smyth, of the Royal Navy, and read in 1830 at the Archæological Society. In this Bath the perpendicular flues were remarkably preserved, they extended from the hypocaust, just below the floor or *suspensura*, and lined the entire walls of the Sudatory, several feet above the pavement or floor of the Bath. The drawing accompanying Smyth's narrative represents a complete succession of rooms. There is the grand entrance, the Atrium, then the Vestiarium, or general dressing apartment, with small rooms adjoining for depilating and anointing: these rooms have no hypocaust. The next room is the warm chamber or Tepidarium, supplied with a hypocaust, but without mural flues; then comes the hot room or Sudatorium, with hypocaust, and abundant mural flues all round for diffusing a high temperature: near it is a smaller chamber, an extra hot chamber, the Sudatio Concamerata. The Piscina, a cold water plunging bath, was close at hand for those who could enjoy the healthy and invigorating reaction of cold after heat. The juxta position of the furnace, the hot-air chambers, and the hot and cold water baths to each other, so that they could be used in succession, proves incontestibly, the manner and order of bathing, as well as the correct structure of the Baths.

This brief sketch of the *Roman Thermæ*, such as existed in *Italy*, will throw very considerable light upon the discovery of similar structures in *Britain*, and prove their identity of structure, use, and ornamentation. The discoveries from time to time of Roman remains furnish strikingly corroborative testimony to the truth of the written History of the Roman Government in this country. It is not my province to speak of the polity of the Romans, their legislation, their military organization, or their other customs. I confine myself to the narrow limit of the historical fact, that the Romans established precisely similar Baths in this country as they had established in their own; and that they adopted a system of sanitary measures well worthy our admiration and imitation.

The decorative arts had once reached a high perfection in this country, as is exhibited in the pavements of Baths, which are ornamented precisely in the same manner in Britain as in those of Italy. The same mythological and fanciful ideas are represented on the stuccoed walls and the mosaic pavements in both countries. The destruction of many noble villas by the Danes, Saxons, and Normans, who could not appreciate the taste nor the arts of their predecessors, nor recognize the utility of the Bath, is much to be deplored; their demolition probably increased in after times, from the fanatical zeal of the Christians, who fancied they could attribute corruption of morals to the practices of the Romans—a hypothesis suggested by Mr. Thomas Wright, who in his instructive and charming work on "*The Romans, the Celts, and Saxons*," has portrayed, with great erudition and

classical taste, the domestic habits, as well as the political condition, of the Britons and Romans in this country. His projected work on the Ruins of Uriconium will afford a rich gratification to the lovers of Archæology, and impart a laudable curiosity to ascertain what was the actual condition of their native land sixteen or seventeen hundred years ago.

The permanent occupation of Britain may be said to have commenced in the reign of Tiberius Claudius Cæsar, about fifty years after Christ, and continued for three hundred years, under the successive Emperors Vespasian, Titus, Hadrian, Pius Antoninus, Severus, Caracalla, Diocletian, and Constantine the Great. In the year of our Lord 50, Ostorius Scapula, a general of Consular dignity, appointed to Britain by Claudius Tiberius, with the title of Proprætor, having arrived in his new province, found things in the greatest disorder; he determined to make no peace nor enter into any engagements with those of whose fidelity he had any suspicion, but to force them to lay down their arms, and to enclose them within a line of fortresses drawn from the River Avon to the Upper Severn as far as Wroxeter (Uriconium) and Chester (Deva). The Roman army marched against the Silures, who in addition to their native ferocity, placed great reliance on the valour of their King Caractacus: and he, skilfully availing himself of the knowledge of his country, transferred the seat of war into the country of the Ordovices. There is a hill called Caer-Caradoc, close to the confines of the rivers Clune and Teme, which exactly corresponds with the place described by Tacitus as the scene of the battle. Caer-Caradoc had probably been the seat and stronghold of British Princes, from immemorial time. It is situated on the ridge of a mountain. The name of Caer-Caradoc seems to have been taken from that of the British Prince—whose castle or fortress it was—Caer-Caradoc in British, *Castra-Caractaci* in Latin. Ostorius was successful and Caractacus was taken prisoner, and sent to Rome with his wife and children: this happened in the ninth year after the war had broken out. When Caractacus, his wife, and children were presented at the Imperial Court, they were viewed as objects of surprise and admiration; and when asked to what nation they belonged, Caractacus replied they were *Angli*, on which the Emperor courteously answered, he should have thought them *Angeli* as they were so beautiful. The Prefect of the Roman Camp was left to erect fortresses in the country contiguous to the Silures; and, surrounded by the Britons, would have been cut off if he had not been reinforced from the nearest towns and castles. These facts seem to show that a chain of fortresses was essential all along the eastern valley of the Severn, that consequently Uriconium was a most important military post, and that a large force was kept there.

The magnitude of the town, circumvallated for three miles, is a collateral proof that for so large a population, public Thermæ were a necessary condition of its importance. A public market, massive columns, and

other remains give proofs that Uriconium was a commanding station, communicating with Chester and Etocetum by the great military road called Watling Street. Its vicinity to Chester and to the Isle of Anglesey, the ancient Mona, rendered it important as a *point d'appui* in case of invasion by the Britons.

This short sketch of the Roman conquest in the West of Britain, and their ultimate settlement, is intended to show that where the Romans did establish a colony or make permanent fortresses, they began to erect those buildings, markets, theatres, temples, and *Baths*, which gradually spread from station to station over all the country.

RUINS OF *THERMÆ* AT CHESTER.

Under the Plume of Feathers Inn, in Bridge Street, is a Roman Bath, reported to be still entire, but nearly concealed from inspection by modern buildings. The only part that can be inspected is the hypocaust, which is of a rectangular figure, supported by thirty-two pillars, two feet ten inches and a half high, and about eighteen inches distant from each other. Over each pillar is a tile, two feet square, supporting a floor of coarse mortar mixed with small red gravel, about three inches thick; and over it another floor, between four and five inches thick, of finer materials. The pillars stand on a mortar floor,—an ante-chamber, about two feet below the level of the hypocaust, but of the same extent, opens into it. This latter was a room allotted to servants who attended to heat the place; the former was the receptacle for fuel designed to heat the room above the Sudorific chamber, in which people were seated, either in niches or on benches placed one above the other, during the time of the operation. Such was the object of this hypocaust; but there were others of different forms for the purposes of heating the waters destined for the use of the bathers. There was an *altar* dedicated to *Æsculapius* and *Salus* or *Hygeia*, found in Watergate Street, Chester, in 1779, in the room adjoining a hypocaust. The sides are ornamented with festoons; below, or on one side, are a Cornucopia and a rudder, emblems of Fortune, with a *Patera* and *Profericulum*: on the other side is a delineation of *Æsculapius*, with his staff and the serpent, the knife and other instruments of sacrifice. On the front is this inscription:—

*Fortunæ
Æsculap. et Saluti ejus
Liberi et familia
Caii Portii T. F. Col. Mamiliari, &c.*

The sculptures of *Æsculapius* the god of physic, and of *Salus* or *Hygeia* the goddess of health, are frequently found in the ancient *Thermæ*, a collateral proof that this hypocaust was a portion of the *Thermæ* of Chester (Deva).

In the year 1799 the remains of another hypocaust and *Sudatory* were discovered in a field near the Watergate, together with a Roman altar, inscribed to *Æsculapius*, and part of a tessellated pavement. The hypocaust was similar to that under the Feathers Inn. The *Sudatory* was supported by twenty-four pillars, composed of tiles nine inches square and two inches thick. On the top of each pillar was a tile two feet square, which had apparently supported a double floor of coarse cement. Round the sides of the room there appeared to have been a row of tunnel bricks fixed with their upper ends on a level with the surface of the floor, and perforated at the sides. The pavement was a circular Mosaic-work, the tesserae composing it were cubes, not exceeding half an inch in size, and of three colours, a dusky blue, a red brick, and a yellowish white. Very recently excavations have been carried on, still further elucidating the character of the *Baths* and hypocausts. Mr. Tite has investigated them with his usual sagacity and skill, and it is hoped that the public will be favoured with an account of his researches.

A very curious and interesting representation was found in 1738, on the walls of one of the chambers—a Gladiatorial combat. Kalendio, one of the combatants, is struck down, he elevates his sword, according to custom, to signify his defeat,—his opponent, Astyanax, with sword in hand, a helmet on his head, and the oblong shield in his left hand, and the net ready to throw over his adversary in case of need. Astyanax, one of the *Retiarii*, is a gladiator who fights with the use of the net, which he throws over his antagonist. On another tablet Kalendio is represented with a trident in his hand, thrusting at Astyanax, whose shield parries the blow. The *Galerus* is placed on the left shoulder of the gladiator; to which is attached the cord of the net, so that he can easily collect it and thus throw the net over his enemy to entangle him. Similar representations of the combats of the *Retiarii* and the *Secutores*, with attendant judges, are to be seen in the scenes of Comic Gladiators in the fine pavement at Bignor in Sussex. Such representations have been preserved in the Palazzo of Cardinal Maximus, described by Saint Petro Bartolo. In a corridor in the Villa Albani, near Rome, there is a mosaic of the same story, delineated precisely in the manner of that at Chester. A piece of rude sculpture, made of stone, found in Mona (the Isle of Anglesey), was dug up much broken, which shows the *Secutor*, armed with sword and shield. This fragment is curious, and refers to one of the Roman Games, in which gladiators fought with each other for the amusement of the spectators. There is an interesting account of such a combat in the works of Saint Petro Bartolo, illustrated with a picture of the combat between Kalendio, a *Secutor*, and Astyanax, a *Retiarius*.

RUINS OF THE THERMÆ AT *URICONIUM*, OR WROXETER.

Some of the most interesting remains of Roman Villas, which have recently attracted public attention, have been found near Wroxeter, the Ancient *Uriconium*. The ruins embrace a circuit of three miles; they have been very graphically described by Mr. Wright, who is at this time engaged in writing a comprehensive account of them, and from his well known abilities as an antiquarian and scholar, we may anticipate the pleasure of enjoying a rich treat in the forthcoming volume on *Uriconium*. I have visited these extensive ruins, and minutely surveyed those portions more particularly which I think clearly indicate the public and private *Thermæ*. Not a doubt can arise that a considerable portion of the excavations belongs to Baths: the size of the apartments, the situation of the furnaces, the construction of the hypocausts, especially the position of the perpendicular flues of the hot chamber, and the contiguity of the cold water bath, are to my mind satisfactory proofs that these rooms were intended for public and private Baths, as there are double sets of chambers of a like kind.

On examining at the extreme east of the excavation, the hypocaust, which is about fourteen feet long and ten broad, and in which there are twenty (or more) square brick pillars which supported a roof, we find at one end the usual hollow *Præfurnium* or mouth of the furnace, charred by the fuel; there are distinct marks of the position of the hollow flues which were placed in a perpendicular direction along the walls,—some of the flues are still adherent to the walls: this room was undoubtedly the *Sudatory* or hot chamber. Adjoining this room is a smaller one, a chamber about eight feet long and six feet wide, the pavement of which is made of narrow bricks, arranged in the zig-zag or herring-bone manner. Such a chamber was probably a small hot water bath room. Ablutions and shampooing might have been performed in this room; although hair-pins and combs, and other toilet trinkets were found in it. On the north of the *Sudatory* are the remains of a *cold water bath* or *piscina*; it is about ten feet long and eight feet broad; its pavement consists of buff-coloured limestone tesserae, carefully imbedded into concrete; the walls have been tessellated with double link and guilloche pattern in red, slate-colour, and pale-buff tesserae, showing it was an ornamental chamber. Mr. George Maw, of Benthall Hall, has remarked that “the pavement of cream-coloured tesserae, forming the bottom of this bath, which would have probably been covered and protected by water at the time of the conflagration, shows no symptoms of the grey discoloration observed in the pavements, but it is singularly clear and uniform in colour when compared with them.” Again he remarks—“In connection with the Bath at *Uriconium*, there is an example of the application of mosaic work of a rather unusual kind in Roman buildings, the walls above the height of the water having been lined with it. A very small fragment of a simple

guilloche border is now all that remains; and from its unusual position is perhaps one of the most interesting relics of Uriconium—it is the only wall mosaic in England.” The arrangement of a Piscina (or cold bath) contiguous to the Sudatory was very common: the Baths I shall describe at Witcombe were so arranged, also those at Caistor in Northamptonshire, and at Bignor; such was the mode adopted in the Baths at Avenches in Switzerland, and in the Baths at Pompeii, in the house of Diomed, as well as that at Lipari in Sicily. Adjoining the hot chamber and leading to it by a doorway, is another hypocaust, perhaps twenty feet by twelve feet—there is no difficulty in supposing it to be the warm room or *Tepidarium*, as one and the same furnace would heat both rooms. In this room there is *no evidence* of the *perpendicular flues*; therefore I infer it is the preparatory room or *Tepidarium*. Then four chambers closely adjoining each other, constitute, apparently, the private baths of the Governor or Commander of the town, as they are situated apart from other portions of the villa.

In one of the chambers a handsome mosaic pavement existed, consisting of squares within squares diagonally, and circles within the inner square, all of the guilloche pattern, and of the usual materials, with a large admixture of greenish stone, probably from the foot of the neighbouring mountain, the Wrekin. In proximity to the hot chamber and cold bath are marks of walls, which indicate two small chambers. I infer from their position they might have been the anointing and depilatory rooms; at least similar small rooms, evidently for such purposes, invariably adjoin the ablution chambers of the *Thermæ*, in Rome. As we proceed to the western portion of the excavations, there are evidences, I believe, of the *public Baths*. On the outside of the walls, on the northern side, is an entrance to the chambers by means of a flight of three large stone steps, at the bottom of which is a moderately sized opening under an arch of masonry; on examining this opening I found the bricks were considerably hardened and blackened, as if they had been subjected to the action of fire: the steps leading to the fire-place indicate, I think, that the opening was the *Præfurnium* or mouth of the furnace. This *præfurnium* opened into a large room about thirty feet long and twenty feet wide, filled with the usual square pillars, perhaps forty in number, forming the hypocaust. There are no flues here as the walls have been destroyed; but the position and magnitude of the furnace indicate the probability that this room was a *Sudatorium*. Close to this, on the north-east end, is a smaller room about eight feet square, with a *herring-bone* brick pavement, similar in character to the one in the private bath, and probably intended for a shampooing and hot-water washing room. From its contiguity to the furnace, it might have supplied a boiler with hot-water; for we find in the Roman baths that there were boilers for hot, and reservoirs for cold water, attached to every large bath, as it was customary to perform ablutions after the process of sudorification and shampooing in the hot chambers. I now

approach the great hall of hypocausts, a chamber adjoining the room where the furnace is,—the two chambers open into each other by a doorway. This large hypocaust is forty feet long by thirty feet wide—at the north end it is of a semicircular form—its floor was supported by more than one hundred brick pillars. I apprehend this must have served as the warm room or tepidarium, as there was no appearance of a furnace in its walls; and therefore it was probably heated from its neighbouring chamber, where the fire-place or præfurnium was unusually large. The entrance to the stove at the Roman *Potteries* at *Caistor*, where the heat required was necessarily great, is built much in the same manner as the mouths of the furnaces of the hypocausts. In the semicircular recess it was very common to place a large marble or stone bath for holding hot water,—this was the *Loutron*, and generally resorted to after the Sudations, and before the plunge into the cold-water piscina. In the semicircular recess, it was not uncommon among the Romans to place an altar or statue of some god or goddess—Æsculapius and Hygeia commonly claimed the honour, as being the patron Divinities of Health. Of course it is not possible to assert positively that these latter large chambers were bath-rooms, in the apparent absence of flues, since the walls were broken down; but it seems to have been an ordinary practice to bring together the whole series of chambers which constitute the baths; and as these are so near to the smaller ones about which there can be no doubt, the inference is that they were the *public Thermæ* for the use of the soldiers and citizens of the town. The absence also of ornamental pavements is favourable to the hypothesis that these hypocausts were a part of the public Baths.

The ruins of Uriconium are replete with many objects of curiosity, but I do not propose to enter upon subjects which do not belong to the examination of *Baths*, however enticing the consideration of Roman Antiquities may be, yet it is impossible to approach these ruins without emotions of wonder; to contemplate a place embosomed in the earth for sixteen or seventeen hundred years, to find in it the proofs of history, which the coins and walls of buildings furnish, and human remains in every variety of posture. These emotions are intensified when the mind contemplates the scenes of desolation, and compares them with the beautiful panorama of living nature around; the everlasting hills—the Wenlock and Stretton, the Caradoc, the Longmynd, the Breidden, on the one hand, and on the other the bold mountain of the Wrekin, rising like a giant, teeming with the beauty of verdure; while the rapid Severn glides by in serpentine forms, unaltered by the scythe of time, scenes which the Romans surveyed with the same admiration which we, seventeen hundred years after, look upon with delight.

The learned Eustace thus describes his feelings on viewing the ruins of Pompeii:—"In other times and in other places a single edifice, a temple, a theatre, or a tomb that had escaped the wreck of ages would have

enchanted us;—nay, an arch, the remnant of a wall, even one solitary column was beheld with admiration,—but to discover a whole city unaltered, the very same as it was sixteen hundred years ago, when inhabited by Romans, fills the mind with profound awe. We range through the same streets, tread the same pavement, behold the same walls, enter the same doors, repose in the contemplations of the same baths. The traveller may long indulge the illusion, for not a voice is heard, all around is silent—not the silence merely of repose and solitude, but of death and devastation—the silence of a city without inhabitants, save the bare skeletons of those, caught in the agonies of despair, who were flying from impending destruction with bags of money in their clenched hands, or those who had crept into holes and corners, and were discovered huddled up in the very attitude in which they perished. This scene of a city raised as it were from the grave, where it had lain during the long night of seventeen centuries, must ever remain pictured on the imagination like an awful apparition, accompanied by thoughts and emotions solemn and melancholy.” The same reflections will pass over the mind of the spectator of Uriconium, when he sees the same streets and walls, baths and buildings, the same crouching remains of human mortality, and the convulsive grasp of coin which marked the last moments of those who died at Pompeii.

It may be mentioned that the general ornamentation of the Baths of Uriconium with regard to mosaics, is of an inferior description—most of the pavements were of simple geometrical forms in black-and-white. One mosaic pavement, however, is a fine specimen of art, containing a series of circles within squares, diagonal to each other, bordered in a guilloche-pattern; and altogether, equal to other mosaics found in the north and western parts of the kingdom in ruins of so early a period of the Roman conquest—probably the reigns of Vespasian and Titus.

THE RUINS OF URICONIUM.

The following is a part of the Prize Poem for which £20 was awarded by the Committee of the Shropshire Olympian Games. It is written by Mrs. J. S. Purton, of Chetton Rectory, Bridgnorth.

Deep in the heart of our fair English land,
Within the sound of the broad Severn's flow,
Quaint fragments of a buried city stand,
Built by a foreign foe.

Built by the warlike sons of conquering Rome,
Who, lured by greed of power, had wandered forth,
And found a grave where they had sought a home,
In the wild stormy north.

How often did they hear the chill wind howl
Around their fortress in the wooded west,
And watch the rain-clouds gather like a cowl
Upon the Wrekin's crest.

And that strong city by the Severn side,
 How strange, how utter must have been its fall,
 That scarce a single vestige should abide,
 Save some old ruined wall.

The rest deep buried in an earthy tomb,
 A mine of treasure for the curious stored;
 How came it to so terrible a doom?
 Was it by fire or sword?

And now, where once in all the pomp of power,
 The Roman eagle spread his haughty wing,
 Waves the sweet banner of wild weed and flower,
 And wood birds rest and sing.

And now, as then, with Spring's first balmly breath,
 The river, bearing still its broken chain,
 Rushes impetuous from its frozen death
 Into a living main.

For now, as in that city's prime, the keys
 Of Summer by their sunny power unclasp
 The stores of Autumn, which by chill degrees
 Sink into Winter's grasp.

And now, as then, above the evening haze,
 The regal sun, ere yet the daylight pales,
 Still lightly touches with his sceptre rays,
 Those grand old hills of Wales.

THE BATHS OF *CAERWENT*.

The description is taken chiefly from the work presented to me by Octavius Morgan, Esq., M.P.

"Adjoining the south-west corner of the wall, enclosing the tessellated pavement which was discovered in 1777, was a rough heap or mound indicating the remains of former buildings. It was thought desirable to examine these, and an excavation was commenced at the south side of the mound. A wall of very solid construction was discovered, and within this, at the depth of 5 feet, the men arrived at the floor of a hypocaust. Some of the pillars, which were formed of sandstone, had been displaced, and amongst them there was a quantity of wood ashes with masses of slag. This excavation was proceeded with, and there was ultimately uncovered a small block of buildings thirty feet by thirty-four, exhibiting a complete set of Roman *Baths*, perhaps the most perfect exemplification of a private suite of baths attached to a dwelling-house yet brought to light. I say *private baths*, for I think they are on too small a scale to have belonged to any public establishment, though they contain, as I think I shall be able to show, all the requisite apartments, and exhibit the entire economy of Roman Baths, both with regard to the mode of heating them, as well as

the general arrangement of the chambers, more completely than any others that I know. Although it is not necessary here to go into the general question of Roman Baths, it may be stated on the authority of various ancient writers, illustrated by the discoveries of Pompeii, that the essential apartments of a Roman bath were, the *Frigidarium*, with the piscina or cold water tank; the *Vestiarium* or dressing-room, which was of the natural temperature or was slightly warmed; the *Tepidarium*, a moderately heated chamber, where the processes of anointing, perfuming, shaving, and other such operations were performed when there were no apartments specially provided for them, which was only the case in the very large public establishments; the *Calidarium*, a strongly heated chamber, with a loutron or hot-water bath; and lastly, the *Sudatorium*, a chamber raised to a high temperature with a dry heat. All these apartments these Baths exhibit, arranged in the most compact manner.

“The walls were two feet six inches thick, and the doorways two feet six inches wide; there is nothing to indicate whether it opened from a court-yard or a room, but it seems probable that the chamber of the pavement opened into the same place. The doorway entered at once into the *Frigidarium*, a chamber ten feet six inches by six feet six inches: there was no flue nor hypocaust beneath it, it was therefore not warmed. The floor had been covered with a tessellated pavement, portions of which, composed of coarse tesserae of dark reddish sandstone, about one and a quarter inch square, remained in the north-east and north-west corners: the central part of the pavement had been destroyed, it was probably of an ornamental character as no small tesserae were found. In the middle of this room was a heap of stones mixed with clay, which had undergone the action of fire. At the south side of this chamber was the cold bath, a tank ten feet six inches long and five feet six inches wide, and three feet deep, extending the entire width of the room, and sunk down below the floor. At the edge of the tank a dwarf wall rose about nine inches above the pavement of the room, and served as the back of a seat along the tank, for the convenience of the bathers. This Bath was found in a very perfect state: it was lined with *red stucco*, which remained uninjured. It had been paved at the bottom with flagstones, bedded in concrete, but these had been removed, with the exception of two fragments at the corners. The stucco all round the bottom of the bath was moulded into a quarter-round of two inches wide, forming a kind of skirting, and this was the case round the floors of all the doorways and apartments. At the bottom of the Bath was a hole through the wall, by which the water was let off. On examining the exterior of the wall there was no drain found: the external aperture was probably on the then level of the ground, and the water flowed away by an open gutter.

“The *Vestiarium*, the dressing room to the Baths, was entered from the *Frigidarium* by a doorway in the centre of the wall. It is ten feet six

inches wide by thirteen feet six inches in its entire length. The end of the room opposite the door of entrance terminates in a segment of a circle which was formed into an alcove by two projecting piers. The floor had been supported on square sandstone pillars above the hypocaust by which it was warmed. This apartment had once been ornamented with a tessellated pavement, as many fragments were found. A doorway, two feet six inches wide, on the sill of which the tesserae of sandstone which formed the pavement still remains, opens into the Tepidarium,—a room, as we shall see, of a warmer temperature than the last: its dimensions were twelve feet square. The tessellated pavement with which it had been floored, and beneath which there had been a hypocaust, was utterly destroyed by the roots of a large apple tree which was growing there, though some of the pillars remained *in situ*. Here were found two bone hair pins, a bronze ring, and coins of Helena, Constantine, and Tetricus. The Calidarium is entered from the Tepidarium by a doorway two feet six inches wide, on the sill of which, as in the last, the coarse sandstone tesserae still remain, and in the angle of junction of the upright jamb with this pavement is a quarter-round skirting of stucco. This Calidarium, which is thirteen feet long by seven feet six inches wide, is the most curious and interesting of all the chambers, for here is the warm water bath, which on the rubbish being cleared away was found as it originally existed. This is a tank six feet by three feet, sunk in the floor at the west end of the room, and its depth was two feet. The whole chamber was heated by a hypocaust, which extends underneath the bath, three sides of which are surrounded by upright flues proceeding from it. These flues at the two ends of the bath are formed with four of the usual flue-tile pipes, with small lateral openings communicating with each other, whilst at the side, half-tiles are employed. These tiles are fastened to the wall by T headed nails, some of which yet remain *in situ*, performing their office. The tank itself is formed by a thick lining of fine concrete or stucco, of a red colour, attached to these tiles. The roof of the hypocaust, underneath the bath, consists of large red tiles, supported on stone pillars, and the bottom of the bath itself of one large paving-slab, set in concrete, having the usual quarter-round skirting. On the south end of the bath, on the level of the bottom, is the hole by which the water was let out. This hole, which passed between the flue tiles, seems at one time to have leaked, and to have been clumsily repaired by a large rough patch of stucco. The edge of the bath, towards the room, is about four inches higher than the sill of the entrance door—a portion of it, eight inches in width, remains. No tesserae were found here: the floor was therefore, probably, of the same red concrete or stucco as the bath, and indeed might have been a continuation, having a gradual slope towards the tank, in which case the room must have been entered by a step. This stucco is deserving of particular attention, for it was the interior lining of the bath, and must have had the quality of resisting the action of hot-water to a very considerable degree, if not entirely. It seems to be composed, like concrete, of lime and pulverized

brick, the facing being very fine in its grain, and in both the baths had been coloured red. It is not improbable that this colour may have been mixed with wax or some fatty substance, and to have mechanically filled up the pores of the stucco, and also resisted the action of water by its greasiness, and if no soap or alkaline substance were used, would last some time, and could easily be renewed. The wall of the opposite end of the room seems also to have been warmed with flues, as a square flue-tile still remains in the corner, and the plaster of the wall still bears the impress of the tile which had been fixed against it. From the Calidarium a narrow doorway, only eighteen inches wide, opens into a small oblong apartment, eight feet long by six feet wide, which has no other outlet, and which, I think, may have been the *Sudatorium*, sometimes called *Sudatio Concamerata*, a chamber which was raised to a high temperature, which from its close proximity to the mouth of the furnace must have been the case here. The floor, now destroyed, under which was a hypocaust, if it were of the same thickness as the rest must have been about six inches higher than that of the Calidarium, from the pillars of the hypocaust being so much taller than those under the other rooms, in which case this room must have been entered by a step; but as the sill of the doorway is destroyed, there is nothing to indicate its real level. If it were on the same level as its neighbour, its substance must have been much thinner, and the room would sooner have reached its high temperature. In a small area enclosed by two walls on the outside of this chamber was situated the *Præfurnium*, or mouth of the furnace, which heated the hypocausts of all these apartments. What now remains of it is a narrow channel between two masses of wall, three feet high,—this was probably covered over, and the two blocks of stone which are still there imply that there had been some more buildings, and it is possible that there may have been an arrangement here for heating water. This channel, though only eighteen inches wide where it passes through the wall, widens to nearly three feet at its mouth, the sides having to all appearance been burnt away by long continued fire. Wood-ashes and slag, or indurated clinkers, formed by the partial fusion of stones and earthy matters that may have got into the fire, which must have burnt fiercely, were found here. We will now trace the flues, and examine the mode of heating these apartments. The smoke and heated-air from the *Præfurnium* passed through an arched aperture in the wall into the hypocaust beneath the *Sudatorium*: two dwarf walls which supported the floor above, directed its main course into the hypocaust of the Calidarium. In these walls, however, are flue pipes with lateral openings, through which currents passed into the small side chambers, and thence through three other apertures also into the hypocaust of the Calidarium. The pillars of the hypocausts were formed of roughly-squared pieces of sandstone, about nine inches square and about two feet high; those, however, under the *Sudatorium* being taller, and those beneath the bath somewhat shorter. The roofs, when found, were of large square tiles or slabs of paving-stone, and the floors

above them were of concrete, ten inches thick; they must, therefore, have required a long time to heat through, but once warm, would long retain the heat. The heat having entered the hypocaust of the Calidarium, passed underneath the bath, and ascended through the upright flues in the wall at the end and side, as also by those at the other end of the chamber,—as the upper parts of these vertical flues are destroyed, we know not how they terminated; but from the proximity to the Præfurnium the heat must have been great, and that the fire, being of wood, was strong, and the draught rapid, would appear from several small pieces of charred sticks having been found in many of the vertical flues. From this arrangement it seems very probable that the Bath itself was the vessel or Loutron in which the water was heated, and, in fact, always kept hot. These particulars are curious and interesting, for I am not aware that any similar arrangements have been observed or recorded. Four apertures convey the heated currents from the hypocaust of the Calidarium into that of the Tepidarium, which having performed their office there, would pass through the single opening under the Vestiarium. No traces of vertical flues were found in these two latter chambers, and their temperature was of course more moderate, being further removed from the source of heat. We have here four chambers of four different gradations of temperature, heated by one furnace, by a very ingenious though a simple contrivance, and it shows that the Romans had made some progress in the art of warming their domestic buildings.”

The Roman Baths in the *Lipari Islands*, near Sicily, are almost identical in structure with these at Caerwent—the arrangement of the chambers is the same, as both have separate dressing-rooms from the Frigidarium, and both have what is unusual, *two hot* chambers, one smaller and hotter than the other, besides the minor particulars. Captain Smythe, R.N., has fully described the Lipari Bath in the — vol. of the *Archæological Journal*. A beautiful pavement adorned the bath, with representations of sea monsters, fishes, &c., in black and white marble.

The tessellated pavements of Caerwent are neat and simple—only two have been preserved in the Museum at Caerlon, and are due to the exertions of Mr. Octavius Morgan, M.P., and to Mr. Lea—they were discovered in 1777, at Caerwent. The one, more elaborate than the other, consists of a series of thirteen circles, in a quadrilateral enclosure, of the guilloche pattern. Seven of the circles, each about two feet in diameter, have petals of flowers in the middle and a simple guilloche around the circle—two of the circles are of a zigzag pattern, with petals of flowers in the centre, and three of the circles are formed of a pattern difficult to describe—the centres are like cobwebs, lines radiating from a common centre to the circumference, with transverse lines. The pavement is on the whole of a simple but elegant design, in colours of a pale buff, brick, and pale neutral or blue lias tint.

RUINS OF THE BATHS AT *WITCOMB*, GLOUCESTERSHIRE.

The Roman *Baths at Witcomb*, near Cheltenham, I believe have never been described before. These interesting remains, which I have carefully inspected several times, have lain buried for centuries, considerably below the surface of the ground, covered with grass and shrubs. About the year 1818, while attempting to remove an old ash tree, the labourers found the roots embedded amongst walls, and the brick-work of a Roman Villa. No distinct house was discovered, but vast fragments of brick-work, the remains of a villa. On clearing away a portion of the mass of ruins, the workmen found two buildings; the walls and tessellated pavements and hypocausts clearly revealed the fact that they were Roman *Baths*: they exhibit a complete example of Baths in this country. They are now preserved in two small stone houses thatched liked cowsheds, which have been erected by Lady Cromie to preserve them from depredation and decay. They are in excellent condition, and very distinctly exhibit the structure and uses to which they were applied. As you enter the chamber of the larger cottage, you find the tessellated pavement in white and black tesserae, which forms the floors of the *Bath*. This chamber is fourteen feet wide by sixteen feet long, with a border a foot deep, all round the room; this border is made of rows of black and white tesserae, each of the size of about half an inch square, alternately placed, one row white and one black. On the floor, which is made of white tesserae, were depicted a considerable number of fishes, chiefly in black tesserae, relieved by white. The tesserae are carefully embedded in concrete plaster, a firm hard cement, two inches thick, that binds the mosaic together. The centre of the chamber has been much broken, and has been repaired with common cement, so that some of the designs of the fishes are not clearly ascertainable. Portions of the designs represent, probably, porpoises or dolphins more than a yard long, one in each corner; there are besides, conger eels, twenty inches long, with cervical fins, such as are found in the Severn; crabs, salmon, flying fish, and sea-dragons, with fantastic horns surmounting the heads; sea-horses, skates, and lobsters. This chamber has neither furnace, nor flue, nor hypocaust underneath the flooring: it is evidently the *Frigidarium* of the bath. From this room you pass into the next through a doorway. It was the usual practice to separate the chambers by means of a wooden door or thick curtain. The second chamber is about twelve feet square. The room has a mosaic border in black and white tesserae all round the flooring, something similar to that of the first room. The pavement is divided into nine large compartments, each from two and a half to three feet in diameter, some square, some circular, and some octagonal, with central ornaments more of the arabesque character, there being no figures of animals. In the centre of the room, one of the circular compartments contains a design of a vase, of at least a foot in height and breadth. The colours of the mosaic are chiefly black, white, and red, so relieved as to give a rich and variegated appearance.

Under the flooring is placed the hypocaust or place for the fire, and evidences of coal ashes were found. The *Præfurnium* or mouth of the furnace was placed on the outer side of the room. The floor of the chamber rests on a considerable number of pillars, somewhat closely packed near each other, but allowing ample space to thrust in between them combustibles for heating the room. The pillars are three feet high, made of a series of tiles, each about a foot square, and about one and a half inches thick, cemented together, and placed over each other: on the top one there is a much larger tile, so that these larger tiles nearly, if not quite, join each other, and form a substantial flooring, over which concrete mortar, made of powdered brick, lime, and sand, three inches thick, is placed, and into this the tesserae are carefully imbedded, and thus a solid and elegant pavement is formed. As the Romans had neither grates nor stoves, this mode of erecting the hypocaust and flooring was universally adopted, and the heat from the burning faggots below was disseminated through the hot chamber by means of flues (which were built into the sides of the walls, the marks of the flue tubes on the walls being clearly indicated) as well as by the heat of the hypocaust under the floor of the hot chamber: several of the flue tubes are broken, but one is entire—it is made of terra cotta, fourteen inches long and eight inches wide, with an opening in its side so as to communicate with the adjoining flue, and is lined on the inner surface with a black deposit so as to show that it had been exposed to the action of smoke: the flue pipe is marked with stripes on the external surface,—the make of this flue is like that found elsewhere, both in the Lipari Bath, and in Britain, at Uriconium, &c. After the heat and smoke had circulated through the hypocaust and then through the side flues of the walls, they escaped by a chimney at the extreme end of the flues; so there was a thorough draught throughout the hypocaust and the flues, which assisted the combustion of the fuel. Comparing the structure of the two chambers with others constructed elsewhere in a similar manner, it leaves no doubt whatever that this building was a Roman *Hot-Air* Bath. Within twenty yards of this building is a smaller one, consisting of two apartments,—the one is about eight feet square covered with a tessellated pavement, not so adorned as that in the other building, but similar in style, and in good preservation, and having a raised seat around it. This is no doubt a small dressing room, for adjoining is the second apartment, of an oval shape, about ten feet long, four feet broad, and four to five feet deep, built of stone: this is the plunging cold bath, a *Piscina*, as indicated, additionally, by an opening into which a leaden pipe had been inserted; the remains of the pipe were found connected with a well, some twenty yards higher up on the slope of the hill. Here, then, is furnished a striking proof how carefully the Romans constructed their Baths, and how much they regarded their health and comfort. There has never been, so far as I could learn, any previous description of these ruins, nor any surmise that they were ancient Baths.

CIRENCESTER OR CORINNIUM.

The Baths and Pavements of Cirencester, the ancient Corinnum, Gloucestershire, have been the subject of some controversy; whether there be positive proofs that the splendid Pavements found in the ancient Corinnum belonged to the house of the Roman Governor, or whether they were a portion of the *Baths*,—these latter, in fact, were the appendages of every Roman Villa. I have examined those remains, which have been removed to the Museum in Earl Bathurst's Park, and also the brick hollow flues found there. The flues are precisely the same as those which have been found at Uriconium, Witcomb, and elsewhere, and I come therefore to the conclusion, that wherever they exist they confirm the opinion that the *Sudatory* or hot-air Bath formed a portion of the public buildings, or was a private Bath of the Governor.

The tessellated pavement placed over the hypocaust is a remarkably fine specimen of mosaic. Sir Robert Atkins, in his History of Gloucester, refers to the discovery of the Roman pavement, in a meadow near the town of Cirencester, and remarks that it was a *Bathing Place* of the Romans; and Dr. Stukeley records the finding of a fine mosaic pavement,—he describes it as part of a *Vault*, sixteen feet long and twelve feet broad, supported with square pillars of Roman brick, three feet high, and on it a strong tessellated floor: twenty-two pillars are standing arranged in six rows, forming the hypocaust of a bath. Among the beautiful remains of Roman art, found in this town, that at the Barton was faithfully delineated and carefully described by the celebrated Mr. Samuel Lysons, nearly a century ago, in the "*Antiquitates Romano-Britannicæ*." I have had the pleasure of inspecting his great work, through the kindness of his descendant, the Rev. Mr. Lysons, of Gloucester, and these remains have been also well described in a book entitled "*The Remains of Roman Art*," by Messrs. Buckman and Newmarch.

The principal pavement in mosaic, which was probably of the age of Titus or Hadrian, consists of a representation of the four Seasons, interspersed with other mythological subjects. The tesserae are made of clays, found in the neighbourhood—red and black burnt brick, the blue lias and yellow oolite. The whole mosaic is about twenty feet square, and contains nine circles, each about a yard in diameter. Three of the Seasons—Spring, Summer, Autumn,—are in the corners: Winter is destroyed. The central figure is nearly obliterated: the front feet of a horse probably implies the former design of a Centaur. Between Spring and Summer is the design of Silenus riding sideways on an ass; he is bearded and semi-nude, having a red garment over his lower limbs. Between Summer and Winter is a medallion of Actæon attacked by his own hounds. Actæon, in consequence of his audacity in approaching too near Diana and her Nymphs, while bathing, was, by the importunities of that goddess to Jupiter punished by

transformation into a stag. The horns are seen growing out of his head, and the hounds, mistaking him for a stag, are devouring him, while, with an outstretched arm he is imploring protection. A Gorgon's head and a Bacchante fill up the intervening square spaces. *Spring* is delineated under the type of a female head, covered with flowers, some of them red, made of *ruby glass*, almost the only specimen of glass known in this country: a swallow, the harbinger of Spring, sits perched on the shoulder, and therefore presumed to be a symbol of that season. *Summer* is represented by a head of *Ceres*, the deity who presides over corn and agriculture,—she is decorated with ears of the wheat, which are spiked, a proof that in that early age the wheat plant had not divested itself of those adventitious growths incidental to a crude period of cultivation. A sickle rests on her left shoulder. *Autumn* is a female head, with a profusion of fruit and leaves encircling her head,—she is habited with a skin of some animal, with black spots on a white ground,—she bears on her right side a pruning hook, by which she can pull down fruits or branches. *Winter* is unhappily lost. The whole of the series of circles is separated from each other by the simple guilloche or braid, of three colours, and the entire mosaic is environed with a deep border of the Greek fret. The subject of the Seasons was a favourite among the Roman Artists—there is one at Littlecote Park, with animals and birds; and other mosaics of the same character have been depicted in Rome, at Ostia, at Halicarnassus, at Lyons, &c. Messrs. Maw, of Broseley, Salop, exhibited in the last Exhibition a beautiful representation of the four Seasons, with the head of Apollo in the centre, designed by Mr. Digby Wyatt, and executed in modern tesserae of every variety of colour suitable to the picture, an evidence of what can be done in mosaic in this country without the necessity of resorting to Rome or Venice.

Messrs. Hare and Co., of Bristol, have successfully imitated the mosaic of Corinnium, in the fabric of a floor-cloth, pourtraying with great fidelity the tessellated character.

RUINS IN DYER STREET, CIRENCESTER.

The tessellated pavement found in Dyer Street, Cirencester, in 1783, has been illustrated by Mr. Lysons. The form would appear to have been a parallelogram, surrounded on four sides by an elegant labyrinth fret of bluish stones, the intermediate spaces being filled up with white free-stone tesserae. In the centre appears a portion of a wheel, pushed by an attendant of Cupid. Another Cupid is riding on a dolphin. Besides, the floor is filled up with marine dragons, the sea-leopard, sea-horse, the lobster, and fishes, the conger-eel, crab, star-fish, spiral shells, and bivalves,—among these the curious fish the *tellina*, with the yellow colour internally. The animals are freely swimming about, presenting a natural aspect in the mosaic painting. The

representation of *marine animals* on a pavement was a favourite mode of ornamentation in *Baths*, and it is similar to those found at the *Baths at Witcombe*, and of one discovered at Rome, which depicts sea-deities—Amphitrite, Nereids, Cupids, Sea-Horses—illustrated by Bartoli. Similar representations of marine animals and fishes have been found in other Thermæ on the Continent, not only in Italy, but in France, Germany, Switzerland, in Carthage, and in the Lipari Islands, and are considered as the characteristic decorations of Baths. There are several representations of marine subjects in the neighbourhood of Rome, described in the works of Ciampini and Furietti, and a magnificent design in the Sepulchrum Nasonum, where it mentions that in the Baths near the Circus Maximus, at Rome, this description of mosaic was found dedicated to Neptune.

The arrangement of the rooms, consisting of the usual hypocausts, furnace, cold water bath, and various contiguous chambers, manifestly proves that they constituted the Thermæ: to this arrangement is added the crypto-porticus or long passage for exercise and walking, usually attached to a Bath, and protected from the weather.

CRICKLEY HILL.

A discovery of a small set of Baths has been made at *Crickley Hill*, at the foot of the Cotswold Hills, and described by Mr. Gomond and Captain Bell; they consist of a series of chambers in juxta-position with flues, and a Præfurnium, water tanks, and crypto-porticus, which warrant the belief that they were a Bath attached probably to some Villa no longer extant.

RUINS AT WOODCHESTER, GLOUCESTERSHIRE.

These superb ruins of an ancient Villa are among the most interesting remains of Roman History. In a beautiful country, of hills and valleys, woodlands and water, the Romans carefully selected a site admirably adapted for the purposes of an extensive and first-rate Villa. The whole of the building, its elegant pavements and Baths, have been fully described in the pages of Mr. Lysons, in his splendid work on Woodchester, in 1796; and more recently a further account has been detailed in the elegant and remarkably instructive work of Mr. Thomas Wright, entitled,—“The Celt, Roman, and Saxon,”—notwithstanding that so much is due to these researches, a brief account of the Baths may be acceptable to those who cannot obtain the ponderous volume of Lysons. As my object is to show that the Romans built Baths in numerous places in Britain, it would be improper not to notice those of Woodchester.

Mr. Lysons observes,—“At the north end (of a range of the buildings) are very considerable remains of what was unquestionably a *Laconicon* or

sweating room. On removing the floor, which was eight inches thick, thirty-three bricks were found, each a foot wide, two feet long, and two inches thick, marked on the under sides in various directions—the under sides were covered with soot, they were the covers of flues running under the floors. One of these flues was longitudinal and four were transverse—they were two feet in depth. The longitudinal was nearly a foot wide at bottom and six inches at top: the transverse were six inches at top and a foot and a half at bottom. The funnels were generally about a foot and a half long and four to five inches in diameter. A row of perpendicular funnels, with their edges turned up, extended along the north and south walls, and no doubt they were carried up to the summit of the chamber to convey away the smoke and increase the heat of the room, as was usual in the hypocausts of the Roman buildings. At the west end of the longitudinal flue are the remains of the fire-place or *præfurnium* of the sweating-room—the walls are three feet high. Adjoining this room, on the east side, is a room, having a cement floor, but no hypocaust; at the corner is a basin hollowed out of the floor, from which a leaden pipe passed through the wall—the pipe is hammered, not soldered."

Mr. Lysons refers to the similarity of the funnels and mode of their application to the walls at Woodchester to those at Wroxeter; but this construction was universally adopted wherever Baths were built, and is a chief illustration that chambers so constructed were Baths. It is probable that another room contiguous to the preceding was an *Apodyterium* or dressing room, and that another room with a descent of three stone steps, was a cold bath or piscina, as it was a common practice among the Romans to use the cold water bath immediately after the Sudatory. The walls remaining on the west side of the crypto-porticus are probably the remains of the Baths, as most of them have subterranean flues for the purpose of introducing heat.

The testimony of so acute and learned an antiquary leaves no doubt that the Thermæ at Woodchester were of a size and style corresponding to the magnitude of the villa and the splendid decorations of the mosaic pavements. Vespasian, Titus, or Ostorius Scapula, who erected so many public works on the western and southern parts of England, may be presumed to have erected the Villa and the Baths of Woodchester.

In a future work I propose to offer observations on the mosaics of Britain, but I can scarcely refrain from remarking that the tessellated pavements of Woodchester, are amongst the most numerous and interesting of those in Britain. The large mosaic, representing Orpheus taming the wild animals, is executed with great boldness and taste in the grouping of wild animals and domestic birds in a series of circles, ornamented with guilloches, a circle of acorns, and a large fine circle of stems and foliage. The wild animals in the outer circle, are the lion, leopard, wild boar, dog,

elephant, griffin, bear, stag, and tiger. Water nymphs or Naiads are in the corners. The domestic animals are the peacock, peahen, cocks and hens, ducks, and cat, the whole surrounded with a magnificent deep border, chiefly of geometrical form.

ROMAN *THERMÆ* AT BATH, THE ANCIENT *AQUÆ SOLIS*.*

We will now proceed to consider these buildings which are parts of the ancient *Roman Baths*.

"The discovery in the year 1755 attracted particular attention. The portion of the baths first brought to light was the eastern wing, which Dr. Lucas examined with the assistance of Wood, the architect: he says it was full ten feet deep under the Abbey House, and the dimensions of the part then uncovered were forty-three feet by thirty-four. 'Within and adjoining the walls are the remains of twelve pilasters, each measuring three feet six inches on the front of the plinth, by a projection of two feet three inches. These pillars seem to have supported a roof. This bath stood N. and S. To the northward of this room, parted only by a slender wall, adjoined a semi-circular bath, measuring from E. and W. fourteen feet four inches, and from the crown of the semi-circle to the partition wall, which divides it from the square bath, eighteen feet ten inches. The roof of this seems to have been sustained by four pillars, one at each angle, and two at the springing of the circle. This bath seems to have undergone some alteration; the base of the semi-circle is filled up to about the height of five feet, upon which two pilasters were set on either side from the area, between two separate flights of steps into the semi-circular part, which seems to be all that was reserved for a bath. In this semi-circular bath was placed a stone chair eighteen inches high and sixteen inches broad.' To the bath were two flights of steps, the flight divided by a stone partition; and the steps seem to have been much worn by use. Eastward of these stairs was an elegant room on each side, sustained by four pillars. To the eastward of this were other apartments, consisting of two large rooms, each measuring thirty-nine feet by twenty-two feet. 'Each had a double floor,' *i.e.*, the floor had a hypocaust underneath, and the rooms were heated by means of flues. Remains of the furnace by which they were heated were also discovered, and about the mouth of the furnace were scattered pieces of burnt wood, charcoal, &c., 'on each side of the furnace, adjoining the wall of the northernmost stove was a semi-circular chamber of about ten feet four inches by nine feet six inches. Their floors were nearly two feet six inches lower than that of the next stove, into which they both open. The pavements were tessellated with variegated rows of pebbles and red

* By permission of the Rev. H. M. Scarth, M.A., Prebendary of Wells, who is writing on the Remains of the Roman City of Bath, the following description is chiefly taken from his forthcoming work.

bricks.' After the time Dr. Lucas wrote his description, discoveries were made of a similar building to the southward, of the same dimensions as the former, and corresponding exactly in position. It was further discovered that these buildings were only the wings of a much larger central building, as is shown in the *plan* taken from Dr. Spry's Practical Treatise on the Bath Waters. Dr. Sutherland states that 'the proprietor of that particular spot in which the left wing of the Roman Baths was built, his Grace the Duke of Kingston, has improved the waters, as far as that space of ground admits of, by erecting six private Bagnios, with corresponding dressing rooms.' Thus the Kingston Baths were built upon a portion of the site of the Old Roman Baths, and the passages and walls of these have sometimes been mistaken for the actual Roman Baths. All the remains, however, seem to indicate a magnificent arrangement of Baths, suited to the elegance and luxury of the Roman people, and all writers on the subject agree on this point.

"The passage of Tacitus, wherein he describes the gradual enervation of the native character of the Britons through the policy pursued by Agricola, seems particularly applicable to this City. 'Namque ut homines dispersi ac rudes, eoque in bello faciles, quieti et otio per voluptates assuescerent; hortari privatim, adjuvare publice, ut templa, fora, domus exstruerent, laudando promptos, et castigando segnes; ita honoris æmulatio, pro necessitate erat. Jam vero principum filios liberalibus artibus erudire, et ingenia Britannorum studiis Gallorum anteferre, ut qui modo linguam Romanam abnuebant, eloquentiam concupiscerent. Inde etiam habitus nostri honor, et frequens toga. Paullatimque discessum ad delinimenta vitiorum, porticus, et balnea, et conviviorum elegantiam; idque apud imperitos humanitas vocabatur, cum pars servitutis esset.'†

"We may conceive the native Britons occupying Hampton Down, (where are vestiges of an ancient British settlement,) as looking down upon the Roman town of Aquæ Solis in the valley, and induced gradually to mix with the new comers, to assume their dress and manners, and to become imitators of their luxury," especially that of the *Hot-Air Bath*, as well as the natural hot-water mineral springs, which have flowed, without interruption, ever since the Romans discovered them.

BRECON, WALES.

The remains of a *Bath* have been found at Brecon; besides a suite of rooms and a Præfurnium, there are the usual accompaniments of the cold and hot water tanks, inferred at least from their relative position, and the circumstance of a curious mosaic pavement with four fishes resembling the salmon, a fish so common at that time in the neighbouring Severn.

† Tac., Vit. Agric., c. 21.

BIGNOR, SUSSEX.

The Villa and Baths of Bignor, near Arundel, are elegant specimens of Roman Antiquities; they are said to be of the age of Vespasian and Titus, and resemble those in Pompeii, destroyed in their reign. There are three distinct mosaic pavements, which adorned as many chambers. The discovery was accidentally made in July, 1811, in consequence of a plough coming into contact with bricks. On farther excavating these ruins, a series of *Baths* was found,—the first room, twenty-four feet square, contained a mosaic pavement, with a design of stars of eight points, each formed by two interlaced squares composed of guilloches, differently coloured, and an indented one, with a flower in the centre. Nearly in the middle of this room was a cold-water bath, eighteen feet by twelve feet, terminating in the segment of a circle: the steps of the bath were covered with stones very smoothly wrought. On the east side of this room were the remains of an extensive hypocaust, thirty-four feet by twelve feet, with a semi-circular recess: from the large quantity of brick piers and flue pipes, it appeared that the apartment over it must have been a *Sudatory*. The *præfurnium* or mouth of the furnace was on the outside of the wall on the south. The hypocaust was built of bricks in the ordinary manner. In the adjoining room were considerable remains of a coarse mosaic pavement, and under it a hypocaust which communicated with the one above-mentioned, by means of an arch of brick, three feet nine inches wide, and three feet six inches high: immediately over this appeared to be a doorway. About thirty feet west of this was a pavement, which, when discovered, was entire, forty feet long and twenty feet wide, and consisted of two large square apartments; one of them includes a circle subdivided into irregular hexagons, with oval compartments in the spandrils of the circle, and ornamented with figures: another compartment contained four octagonal divisions.

The tessellated pavements of this Villa and Thermæ are among the richest specimens of Roman decorative art in Britain, and in many respects they closely resemble those at Avenches in Switzerland, known to be of the Vespasian age. I have very carefully examined the structure and the mosaics of Bignor,—the structure so resembles those at Avenches, Culm, and Nîmes, that no doubt can be entertained that this handsome villa had its usual accompaniment of baths, the ruins of which give sufficient evidence of their purposes.

The *Mosaics of Bignor* have been partially described by Mr. Samuel Lysons, with his accustomed accuracy; but he has omitted several particulars worth recording. There are at present three separate thatched buildings, in which the pavements are preserved. On entering the first room you come at once to the octagonal fount, made of stone, with a hole at the bottom,—it is only three feet deep; it stands in the centre of a

large octagonal tessellated pavement, nearly obliterated. In two of the sections there are figures of Bacchantes, two feet high—these figures, as well as the octagonal stone fount, are so similar to those at Avenches in Switzerland, as to leave the impression that the same artist executed them. Beyond, in the same room, is the story of the Eagle flying off with Ganymedes, by command of Jupiter: the bird of Jove, with outstretched wings, more than a yard wide, is just on flight; its talons are carefully placed over the hips of the youth so as to get a firm grasp without hurting him. Ganymedes is habited in a loose cloak, has on his head the Phrygian Cap, and a crook in his hand: the whole design is elegant, and is a subject of frequent representation in the Baths and Temples of the Romans, in Italy: an exact copy was painted on the ceiling in the Baths of Titus. Another pavement exhibits a colossal head of Juno, singularly commanding: she has a noble mien, fit to personify the Queen of Heaven and the spouse of Jupiter. In her forehead are five stars, and her head is encircled with the blue nimbus or glory, to signify her celestial dignity. There is no other nimbus in Britain; but in the Frescoes of Avenches, a nimbus adorns the head of Bacchus. Two peahens, perched on branches, are near her. Peacocks and peahens were sacred to Juno.

The head of Winter is the only one remaining of the four Seasons: he has a grave, cold look; a cloak or hood covers his head and shoulders, and a leafless branch is in his hand, symbols of the winter season. The head of Medusa is in another room.

A remarkable delineation of Comic Gladiators is placed below the head of Juno. *Secutores* and *Retiarii*, winged like Cupids, are engaged in combats: the story is full of life. There are no less than twelve figures depicted, each a foot high: it is a curious exemplification of the love of humour among the Romans. In connection with the representation of *Gladiators*, who were termed *Retiarii*, *Secutores*, *Samnites*, &c., I can scarcely resist the temptation of giving an extract from "The Gladiators," by Mr. Whyte Melville, as illustrative of Roman games and the mosaics which have recorded them. "Julius Placidus prided himself on his skill in the deadly exercises of the Circus. The contest between the *Retiarius* and the *Secutor* was always a favourite spectacle with the public. The *Retiarius* carried an ample casting net upon his shoulders, a three-pronged spear in his hand; the *Secutor* was armed with a short sword, oblong shield, and vizored helmet. The art of the *Retiarius* in entangling his adversary had arrived at such perfection that he was constantly the victor. Once down and involved in the fatal meshes of the net, there was no escape for the swordsman. Great activity and speed of foot were the principal qualities of the *Retiarius*. The gladiatorial exhibitions had become so necessary to the life of the Roman, that the saying, "*Panem et Circenses*" passed into a proverb. The people would leave their business and sit for hours on the benches of the Amphitheatre to witness the

combats,—to see the trained gladiators shedding each other's blood: wild beasts tearing foreign captives limb from limb: knights and patricians, and even Emperors, entering the arena to contend for the praises of the vulgar."

The Emperor Titus is said to have brought forty thousand captive Jews from Jerusalem, to build the Colosseum, his Baths, Palaces, and Arch: he dedicated numbers of these unhappy men to the fury of the Gladiators and to the wild beasts. Pictorial representations of these games were probably to record the pastimes—hence we find them on the mosaics of Bignor, the stone sculpture of the Baths at Chester (Deva), in the mosaics at Rome, and the frescoes of Pompeii.

LINES ON THE ROMAN PAVEMENT AT BIGNOR.

"Of all the sights in Sussex,
Of lions great and small,
The Roman works at Bignor,
By far exceed them all.

* * *

"For, plainer than by learned page,
The story here is told,
That Roman power and Roman skill
Were here in days of old.

"The palace walls are crumbled,
The Baths are fall'n 'round
Beneath, the curious pavement lies
Scarce broken on the ground.

"And here are heads of heroes
Rich borders set within,
And groups of dancing bacchanals,
And gladiators grim;

"And there the ancient fable
Of Ganymede is given,
Where Jupiter on Eagle's wings
Is bearing him to heaven.

* * *

"Some Roman of the olden time,
Brought here the artist band,
And reared this stately dwelling
Upon our northern land."

* * *

RUINS AT NORTH WRAXALL, WILTSHIRE.

Poulet Scrope, Esq., M.P., has given an account of an interesting discovery of Roman Buildings recently made at North Wraxall. The workmen cleared the foundation walls of one entire building, measuring one hundred and thirty feet by thirty-six feet, and containing more than sixteen separate rooms or courts, and traced several other walls, extending over an area of three acres; it stretches nearly north-east and south-west. The south-western extremity is occupied by a series of five or six small chambers, communicating with one another by doorways, suspended over hypocausts or arched ranges of flues. Two of the largest rooms possess semi-circular recesses at one end; one is occupied with a large *stone bath*—the front of which is unfortunately broken—a floor of stone slabs, neatly joined, rested on numerous pillars, according to the method peculiar to Roman hypocausts. Considerable interest attaches to this collection of rooms, as the arrangement corresponds most accurately with that usually practised in the structure of the *Roman Thermæ*. There is a small innermost room immediately adjoining the furnace, and therefore the hottest of all, which was no doubt the minor bath or *Laconicum*; from this a doorway communicates with another heated room, the *Sudatorium* or hot room—having a stone bath or *Loutron* at the end; then comes what was no doubt the *Tepidarium* or warm apartment, based on hypocausts, and this opens into a still larger chamber, the *Frigidarium* or cool room, to which access was gained from without by a long corridor or *cryptoporticus*. This arrangement of the several rooms is evidently intended to allow persons taking the bath to approach and leave the most heated chamber through successive gradations of temperature, as was the ancient practice. The internal parts of the hypocaust retained a thick coating of soot of wood, and on one side of the furnace a recess was filled with soot to the depth of more than a foot. Besides the pillars of tile supporting the floors of these rooms, many hollow flue-pipes made of *terra-cotta* were met with in the hot rooms and hypocausts—some upright, some oblong, and many on the floor broken; there can be no doubt these conveyed the hot-air from the hypocaust into the rooms above.

RUINS AT PITMEAD, WILTSHIRE.

Among the relics discovered in 1786, was a room having a tessellated pavement fifty-six feet long and ten feet wide. There was another room, twenty feet square, in which the floor was composed of a rich mosaic, comprising a circular area ornamented with flowers and birds, and inclosed within a square frame, bordered on the outside with a braided guilloche, and on the inside with a labyrinthian fret. On the east of this were the foundation of a *Sudatory Bath* and hypocaust, and a profusion of tubulated bricks indicative of the ordinary Hot-Air Bath.

The Sudatory Baths at Pitmead were decorated with two mosaics: the one describing Cupids, dancing—one figure has in his hand a bird and a bag, as if bird-catching; another has a crook and flowers: the other mosaic is a large coarsely constructed subject. It is divided into a central octagon, in which Bacchus, with his cup and thyrsus, is in a sitting posture—around him are eight conical-shaped compartments, each filled with a figure. One is Neptune, with trident in hand, corals in his hair, and cloak over his shoulders; one, Erato; one, Orpheus, with his Phrygian Cap; one, a boy with a basket and a net—others are not intelligible, and one is too much broken to conjecture its design.

THE ROMAN BATHS IN LONDON.

A Bath, little known, is situated in the middle of a lane, opposite the Church of St. Clement Danes, leading out of the Strand towards the river; it is supposed to be the plunging or cold bath. It is twelve feet long, four feet deep, and six feet wide: the walls are made of stone with a layer of tiles intervening, in the usual Roman style. The bottom is paved with square brick tiles, six inches square. The general construction leads to the belief that it is of Roman origin. The water, from never-failing springs, is remarkably cold and clear, and it is a favourite bathing place, especially in Summer, and much resorted to by the Barristers in the neighbouring Inns of Court.

Under the Coal Exchange in Upper Thames Street, at a considerable depth, which is reached by a flight of stairs, are the remains of a Roman Bath, very much dilapidated; there are the debris of a furnace and pillars of bricks to support a now almost entirely destroyed suspensory pavement, and around, there are the seats for the sitters, plastered in the usual manner: it is conjectured that extensive pavements and walls exist under the foundations of the adjoining houses.

Mr. Wright, in his instructive work, "The Celts, Romans, and Saxons," observes—"It appears that almost every town had its public Baths or Thermæ, and they were often placed near the Basilica or Court House, we learn from an inscription that at Epiacum (Lanchester) the public Baths and Court House were built together from their foundations, in the reign of Gordian.

"Before we quit the Roman towns, we must notice one of their important features—their Sanitary condition. We have seen how careful the inhabitants were to keep themselves warm and dry, cleanly and healthy; traces of pipes and drains were found in their houses, which no doubt were intended to carry off superfluous water and filth. At Wroxeter, one of the streets has a gutter running down the sides, well formed of hewn stones, and something like that at Salisbury and other old towns. The sewers in Lincoln are in good preservation and of

excellent masonry." Mr. Roach Smith says that the sewers of the City of Trèves, still in use, bear a close resemblance to those of Lincoln, and they are of Roman origin.

In his "History of the Domestic Manners of England," Mr. Wright gives a curious account of the Hot-Air Baths in the Middle Ages, which were obviously derived from the practice of their ancestors—"Among the customs introduced from Italy was the hot-sweating Bath, which became for a considerable period common in England. They were usually known by the plain English name of *hot-houses*, but their eastern origin was also sometimes indicated by the preservation of their Persian name '*Hammaum*.' This name is still retained by the two modern hotels which occupy the sites of establishments of this description in Covent Garden. Sweating in hot-houses is spoken of by Ben Jonson, and a character in the old play of 'The Puritan,' speaking of a laborious undertaking, says—'Marry, it will take me much sweat: 't were better go to sixteen *hot-houses*!' They seem to have been mostly frequented by women; and they became, as in the East, favourite places of rendezvous for gossip and company. They were soon used to such an extent for illicit intrigues, that this circumstance, probably, led eventually to their disuse. A very rare and curious broadside woodcut of the reign of James the First, entitled, *Tittle-tattle* or the Several Branches of Gossiping, which in different compartments represents, pictorially, the way in which the women of that age idled away their time, gives in one part a sketch of the interior of a hot-house. In one division of the hot-house the ladies are bathing in tubs, while they are indulging themselves with an abundance of very substantial dainties: in the other they appear to be still more busily engaged in gossip. The whole broadside is a singularly interesting illustration of contemporary manners. A copy of it will be found in the print room of the British Museum; and it may be remarked (which I think has not been observed before) that it is copied from a large French etching of about the same period, a copy of which is in the print department of the Imperial Library in Paris. This is sufficient to show the close resemblance at this time between manners in France and in England. In the former country, the resort of women in company to the hot-baths is not unfrequently alluded to, and their behaviour and conversation there are described in terms of satire which cannot be transferred to our modern pages. In these popular satires, the bathers are sometimes *chambrières*, and at others good *bourgeoises*. The *pic-nics*, which had formerly taken place at the tavern, were now transferred to the hot-bath, each of a party of bathers carrying some contribution to the feast, which they shared in common. Thus in the popular piece, entitled—'*Le Banquet des Chambrières fait aux Estuves*,' printed in 1541, it is the chamber-maidens who go to the bath, and they begin immediately to produce their contributions, one exclaiming—

"j'ay du porc frais
Une andouille et quatre saulcices."

The women are seen eating their *pic-nic* feast in one compartment of the cut. This practice soon passed from the servant maids of the bourgeoisie to their mistresses, and from the burghers' wives to ladies of higher condition. Our word *pic-nic*, representing the French *pique-nique*, the origin or derivation of which word seems not to be clearly known, appears to have come into use at the latter end of the last century, when people of rank formed evening parties, at which they joined in such *pic-nic* suppers, to which each brought his or her contribution. The term is now applied almost solely to such collations in the fields, or in the open-air."

THE BATHS OF HARTLIP IN KENT

were discovered by Mr. Bland, in 1845, as narrated in the *Collectanea Antiqua*, vol. 2, by Mr. Roach Smith. "The arrangement of a hypocaust, of the furnace, and the *Baths*, is an interesting addition to Roman British domestic architecture: the walls of the passages are tinted and stuccoed red, blue, and yellow, as at Pompeii. The floors of the rooms were cemented with a composition of lime and stones and pounded tile, the walls stuccoed and coloured; two apartments had their sides composed of oblong hollow tiles—they were heated by furnaces: opposite to a semi-circular recess is a strong foundation of tiles, which supported a cistern of hot water, though no pipe was found. There was one bath about two feet deep—on one side is a seat eight inches wide: this was capacious, for children and for partial ablution of adults. Another bath was for the total immersion of adults, provided with a seat extending the entire length of the inner side, which had within its walls a series of hollow tiles, and cemented over with a thick layer of plaster; the sides as well as the floors were plastered and coloured. On examining the foundations of many Roman Villas in this country, we are surprised at the confined dimensions of most of the rooms—there can be no doubt that many of the numerous internal walls were mere divisions for the more commodious arrangement of sitting, sleeping, and bathing."

THERMÆ AT YORK (EBORACUM).

In so important a military station as the ancient Roman town Eboracum, vestiges of columns, friezes, sculptured monuments of every kind, in profusion, little doubt can be entertained that all the appurtenances of Roman life existed there. York was the northern capital, and certain legions, especially the 6th and 9th, were known to have been stationed there for many years, as it does not seem to have been a part of their military code to remove the legions frequently from town to town. Wherever a numerous band of soldiers was quartered, it is evident they would need the Bath, which served the double purpose of cleanliness and a hospital for the cure of diseases, so incidental to a cold humid country as that of Yorkshire. But we need not conjecture that there were the usual Thermæ in this city—numerous evidences exist of the actual fact—though a well defined and regular building, clearly indicative of a bath, is less obvious

than in other places among ancient ruins. Fragments of the ordinary structure of the Bath have been discovered and removed to the Museum—numerous portions of pilæ, the small stone or brick pillars which formed the hypocaust—portions of the thick flooring called the *suspensura*, which constituted the floor of the bath room—abundance of the hollow flue-tiles, black or darkened in the inside—portions of the furnaces, the mouths of which were burned black from the heat of the fires—leaden pipes, similar to those found elsewhere in the Baths—an altar, dedicated to the goddess *Fortuna*, one of the tutelary guardians of the Bath, all concur to establish the belief that they belonged to the *Thermæ*.*

The inscription on the altar was the following :—

“ *Divæ Fortunæ*†
Sos Juncina, Quint. Anton. Isaurici
Leg. August.—filia dedicat.”

REMAINS OF A BATH AT WALESBY, LINCOLNSHIRE.

A few years since, indications of a Bath were found at Walesby, consisting of two furnaces, with ash-pits and flues, hypocausts under three rooms, and fragments of pavements, a cold plunging bath, with a double bottom and drains. The Villa, of which these ruins were a part, is situated near the Roman road, as was the usual custom to plant villas in the neighbourhood of the main roads—in this case the road was no doubt the Foss-way, which traversed the country from Exeter to York and Scotland. The position of the villa commands fine views of the woodlands up towards the cliff hills, now crowned by the beautiful landmark, Lincoln Cathedral, situated on a lofty hill, visible for many miles around the country as one of the noblest monuments of Christian architecture. The whole of Lincolnshire was occupied by the Romans, who built splendid villas and pavements at Horkstow, Scampton, Denton, &c.

The pavement at Horkstow, representing Chariot Races, is strikingly analogous to those found in the Baths of Caracalla, and equal in spirit those celebrated pavements of the Horse and Chariot Races, now in the Museum at Lyons. The grand pavement of Apollo—Sea-Nymphs, Cupids, &c., almost entirely obliterated—which has been attempted to be made out by the genius of Flaxman, is a most elaborate specimen of taste—of which a drawing may be seen in Lysons' work on the Roman Remains in Lincolnshire.

* In a case, in the Museum, there is a Model of the Remains of the Roman Baths, which were discovered in excavating for the railway station, executed by Mr. Baines, the sub-curator of the Museum.

† The goddess *Fortuna* had sometimes the word *Balnearia* appended to her name—it was one of her offices to preside over the Bath. In the Temple of Fortuna, at Præneste, there were Baths dedicated to her.

RUINS OF BATHS AT NORTH LEIGH, OXFORDSHIRE.

Having heard that there was a tessellated pavement at North Leigh, I proceeded there, from Oxford, and found, inside a covered cottage built by the Duke of Marlborough, with a view to preserve it, a very good specimen of a tessellated pavement, consisting chiefly of geometrical forms and leaves of flowers; some of the tesserae were of red brick, others of a dark almost black colour, and others of a dirty dingy yellow-ochre colour. The pavement was about thirty feet long and twenty feet wide, of which I made a copy, as no engraving or drawing could be met with in Oxford. The pavement was bounded on its outer side with tesserae of a guilloche pattern. On making further examination, there were palpable evidences that the pavement rested on a hypocaust, to which were attached the mouth of a furnace and the usual flue pipes so constantly found in connection with the Baths. On enquiry, I learnt that a pamphlet had been written on these Roman Remains, by Henry Hakewill, Esq., published in 1836. The description which he gives of the Baths is an important addition to the history of the Roman Baths in Britain; and there is the remarkable evidence that there were *two sets* of Baths—probably public and private, as we have seen at Uriconium and other places. There were several rooms, in that order and position which justify the conclusion that they were the old baths. Mr. Hakewill conjectures that one or more of the chambers had been vaulted. The walls of one of the chambers had been lined with the hollow brick funnels, which passed through the floor into the hypocaust below—many of the funnels were in complete preservation, and were one foot and a half long, and the inner diameter about four inches. The flues had been placed over each other perpendicularly, and made to fit into each other—openings on the sides of the flues allowed the heat to act laterally on the plastered walls of the chambers. The flue pipes on one side of the chamber were larger than those on the opposite side, and were encrusted with the black marks of soot, and were probably the tubes which led to some chimney. The furnace contained a quantity of ashes. The pillars of the hypocaust were about two feet high, consisting of a dozen tiles nearly eight inches square, laid over each other, and on the top of the pillars larger tiles were placed, so that they touched each other, and thus formed a complete tile covering; on this surface, a coating, eight inches thick, of mortar, was laid, making a hard compact bed, into which the tessellated pavements were firmly set. The number of pillars seemed to have been considerable,—probably from the dimensions of the room there might have been nearly one hundred. Besides this chamber, with its appurtenances, there was another of a similar construction, nearly twenty feet square, with two semi-circular recesses. The one adjoining the præfurnium contained a place for the warm bath, separated by a step seven inches above the level of the floor. The size of the Bath was about eight feet by six feet, and two steps descending led into it. All round the circular part there was a range of brick funnels running upwards to some

height—these funnels and the whole of the interior of the Bath were covered with red plaster: a part of a small lead pipe was found near the bottom. There were evidences of an extensive crypto-porticus surrounding the building, six hundred feet long and ten feet wide, paved with red tesserae. A large portion of these buildings is now so covered with grass and earth, as not to be readily discernible; though when first discovered in 1813, the arrangement of the different rooms was such as led to the inference that they were those portions of an extensive villa which had been the sites of baths. The situation of this villa is very picturesque: it is placed in a valley surrounded by undulating hills, and a small river meanders near the extremities of the buildings. The Romans were careful usually to provide the means of a good water supply, and to place their villas under the shelter of some contiguous hill. In the neighbouring village of Stonesfield, there are now no vestiges whatever of a villa or the remains of baths and pavements. In the year 1712 a tessellated pavement was discovered of a beautiful design: it was engraved by Vertue. The drawings of several pavements are in the archives of the Society of Antiquaries.

CONTINENTAL *THERMÆ* OF A CONSTRUCTION SIMILAR TO THOSE OF THE BRITISH.

That the ruins of ancient buildings in Britain of the Roman period were of various constructions, adapted to the purposes for which they were built, no one can doubt; and it may be extremely difficult to determine of what character, or to what purpose many of them were intended. It is probable that the dawning religion of Christianity developing new sentiments, and new-born zeal, would induce the Saxons and Normans to destroy the Pagan temples, and the theatres of the Romans, who combined their worship and their amusements—but the new races might have been disposed to spare the more valuable buildings of the *Thermæ*, which were subservient to their health and comfort—and which offered few allurements to perpetuate Pagan superstitions. Hence, probably, so many buildings remain which may be proved distinctly to be the *Public Thermæ*; since their construction and arrangement, so exactly correspond with those in other countries, in France, Germany, Spain, and Switzerland, where the Romans settled. We shall take for example, some of those remains of old buildings, about which there is no dispute, whose traditions and history are admitted, some of which for size and magnificence rivalled those of Pompeii and Rome.

THE ROMAN *THERMÆ* IN THE LIPARI ISLANDS NEAR SICILY.

In a volume of the Archæological Transactions, mention is made by Captain Daniel, R.N., of the *Thermæ* in the Lipari Islands. It is a facsimile of the *Thermæ* at *Caerwent*: it is difficult to say which had the prior origin, and the perfect similarity of the two, might lead to conjecture that they were built by the same architect, probably in the time of Vespasian. We have the same arrangement of chambers, preceded by a long ambulatory gallery, or crypto-porticus. A similar Atrium or entrance hall, Frigidarium, Tepidarium, Sudatorium, and, what is rare, an extra-heated chamber, the *Camera Sudationis*, for those who needed or could bear the excessive heat; besides these, there are evidences of the hot water bath or *Loutron*, generally placed in the *Sudatorium*, and near to it the cold-water bath, the *Piscina*, often so large as to be adapted for plunging in or swimming. Besides the close analogy of the *Thermæ* of Lipari to those at *Caerwent*, another collateral proof of the purposes of the buildings is, that in one of the rooms was placed a tessellated pavement, of sea monsters, fishes, &c., in black and white marble, these representations so often recurring in the baths, similar to those at Witcomb and Cirencester in our own country, and to those in Rome, in the *Circus Maximus*, and elsewhere.

RUINS OF THE *THERMÆ* AT AVENCHES, SWITZERLAND.

In the neighbourhood of Avenches, the ancient Aventicum, in the Canton of Zurich, exist the well known remains of the Roman *Thermæ*. A copious account of these celebrated ruins of a Roman Villa, and its accompanying *Thermæ*, has been published by M. Schmidt, of Berne, in a work entitled "Recueil d'Antiquité d'Avenches et Culm en la Suisse," in the year 1760. Of the ancient writers who have described these places, the historian Godefroi de Viterbe gives the earliest account—

"Nomen Avenza fuit, quæ peritura ruit
Illa superborum vigit feritate virorum;
Marte Suevorum periit primatus eorum,
Decidit Armorum cultus et omne forum."

It appears that the Emperor Vespasian loaded the town with his favours; and among other indications of his attachment is reputed to have built the *Thermæ*; the magnificent tessellated pavements of which rival those of any that exist, for variety and objects of interest. Schmidt observes—"Que la Salle de la Mosaique faisait partie des *Bains*; sur un fondement était le *Baptisterium*; mais le peu d'étendue et de profondeur qu'il a, me fait croire qu'on y plaçait une cave ou *Loutron*, dans laquelle on se tenait debout, quand on se faisait frotter au sortir des Bains. Cette opinion est fondée sur plusieurs monumens anciens: on y voit des Loutra ou Labra de différentes grandeurs; de chaque côté du bassin on voit deux Dauphins. On a trouvé auprès beaucoup de fragments de Jattes antiques de différentes couleurs: la grande quantité de ces Jattes et le lieu où on les a déterrés m'ont fait soupçonner qu'elles avaient autrefois servi en partie de pots d'onguens et qu'on les plaçait dans l'*Eléothesium* ou chambre de parfum qui faisait toujours partie des Bains. En 1741 on fit dans le Canton de Zurich la decouverte des *Thermes* Antiques, dont M. Breitingen a donné une savante description; on trouva dans ces bains une chambre remplie de Jattes."

During the last winter (1863), there was a considerable number of Roman antiquities dug up at Avenches; the principal piece was a mosaic pavement or floor, twenty feet long and fifteen feet wide. Although the most interesting portions are much damaged, there are so many beautiful pieces remaining, that they are now removed for the purpose of being preserved. Particularly remarkable is the circumstance, that under the flooring fresco paintings have been found; which leads to the supposition that the mosaic floor rested upon yet older ruins.

The similarity of some parts of the construction of the Baths at Avenches and of the decorative arts which adorned them, to those of Bignor, is striking. The octagon fount at Avenches resembles that at Bignor—the nimbus which graces the head of Juno is analogous to the nimbus which surrounds the head of Bacchus, as he surveys the beautiful

form of the sleeping Ariadne, while one attendant lifts the veil to exhibit her person, and another attendant, standing behind Bacchus, lifts up his hand in admiration of her beauty. The figures of the Bacchantes, broken and decayed as they are on the Bignor pavement, are yet sufficiently distinct to show how closely they resemble the frescoes of the Bacchantes on the walls of Avenches. Two figures are so identical that the one must be a copy of the other. When we know that the Emperor Vespasian established the *Thermæ* at Avenches, and that his legions occupied the south of England, it is more than probable that the same artists designed and perhaps executed the mosaics and the Baths of Avenches and Bignor.

THERMÆ AT CULM.

At Culm, another village in the fertile valley of Bas Aergeu, Canton of Berne, proofs of the Roman *Thermæ* exist. The same author, Schmidt, mentions the discovery of hypocausts, &c. He says they are essential parts of the *Thermæ*—"Elles faisoient partie des *Bains*. On y faisoit suer les gens par l'air-chaud, et uniquement par la forme de chaleur—les anciens considéraient cette transpiration très convenable à la santé. On en a découvert beaucoup de semblables en France, en Allemagne, en Angleterre."

"Quædam nostra demum prodixisse memoria scimus, ut speculariorum usum, perlucens testa, clarum transmittentium lumen, ut suspensuras Balneorum et impressos parietibus tubos, per quos circumfunderetur calor, qui ima simul, et summa foveret æqualiter."

"Les beaux Marbres, plusieurs Mosaiques, l'étendue de cette Edifice, les vestiges des *Thermes*, avec les Jattes de terre fine prouvent que ce Seigneur avait chez lui, tout ce qui pouvait contribuer à l'agrément de la vie privée des anciens. Elle, a été détruite par le feu."

A beautiful large *Loutron* or hot water vase of Porphyry was also discovered in the *Thermæ*. These and other collateral indications testify that both at Avenches and Culm, the Baths were constructed on the same principles and in the same style as those of other nations, and of our own, and especially that of *Bignor*, made unquestionably in the time of Vespasian.

THERMÆ AT KLOTEN, SWITZERLAND.

This building was discovered in 1724, then in good condition; but it is to be regretted that the arrangement of the heating pipes or flues, of which many broken fragments had not been noticed, and nothing could be made out but that the flues stood along the sides of the walls perpendicularly, near each other, and connected together by square holes which were made in the middle of them. The rooms were warmed at the sides by means of these wall flues, which served also as a ventilator or air draught. These rows of pipes were covered with a rough coating of gypsum. One room was

separated from the adjoining by side walls of burnt stones. The walls were covered or overlaid, first, with chalk, then with calcined stones, well smoothed, and over this a groundwork, painted in encaustic. Another apartment was of a horse-shoe shape, provided with a double floor, the upper one of which rested on pillars two and a half feet high, three-quarters of a foot thick, and one foot from each other. The floor was ornamented with mosaic work, of which small fragments are yet visible. The warming of this room was through an opening, where the two brick pillars, standing by the fire-opening, are burned quite brittle: this fire-opening was one and a half feet square, and covered or closed with a sandstone slab. Neither the place of the air draught, nor the arrangement of the heating pipes, could be traced. Three steps led into the adjoining room: this room, as its position, and the conduits for the admission of water and for its exit denote, has doubtless served for a *Piscina* or cold water bath. Thus much appears to be proved—that in Helvetia, (Switzerland,) the greater part of the single or detached buildings were not private dwellings, but public *Thermæ* and military establishments, and principally served for the accommodation of the magistrates or the travelling legions. Buildings of the same style and construction, highly ornamented with mosaic pavements, have been found near St. Gall, Switzerland.

THE *THERMÆ* OF THE ANCIENT *NEMAUSUS*,

the present City of *Nîmes*, in the South of France, has been accurately described by the celebrated M. Auguste Pelet, Inspecteur des Monumens Historiques du Gard, in a work entitled, “*Essai sur les Anciens Thermes de Nemausus*,” who ascribes the origin of them to the Emperor Tiberius, though afterwards the Emperor Hadrian seems to have enlarged and embellished them. These baths were buried in obscurity, and not sufficiently explored till the 18th century, Mons. Pelet, says—“*Vers le milieu du Siècle xiii., on ne se doutait nullement que la ville de Nîmes eut renfermé des Bains Romains dans son enceinte. Les fouilles que provoquèrent ces études ne commencèrent qu’en 1738; et quatre ans après, un des monuments les plus intéressants de l’antiquité, les Bains romains de Nîmes, sortaient de la fange qui les couvrait depuis si long temps. Les savants déclarèrent que c’était là des restes d’anciens Bains; de nouvelles richesses étaient exhumées chaque jour, de somptueux édifices, des colonnes, des inscriptions sans nombre, des statues, des marbres, des porphyres, étaient le résultat des recherches de la journée. Les anciens Bains de Nîmes et le monument connu sous le nom de Temple de Diane fait supposer avec raison que ce dernier était une appendue de ce vaste établissement.*” Mons. Pelet then describes the usual characteristics of the Bath,—the warm and hot chambers, &c., and speaking of the hypocausts, observes—“*L’un surtout, c’était un fourneau ou hypocauste qui paraissait en partie sur la face méridionale. Je fus quelques jours à considérer une ouverture carrée de trois pieds de large sur autant d’élévation;*

heureusement, quelques terres qui étaient au-dessus s'écroulèrent pour me laisser voir ce qu'elles dérobaient à ma vue et qui avait fait le sujet de mes doutes : une espèce de tour, bâtie avec soin, fut tout ce que je pus apercevoir : le ciment dont elle était incrustée était d'une dureté comparable à celle de la pierre, et calciné en plusieurs endroits par l'activité du feu : cette preuve m'enhardit à lui donner le nom de fourneau." Above the furnace was a reservoir for hot water for the labra, sometimes made of brass, sometimes of marble or porphyry. "On allait aux Thermes pour suer et aux bains pour se laver." To this day the ruins of the Thermæ and the adjacent Temple of Diana are replete with interest,—the Baptisterium must have been of immense size, and the supply of water very copious. The *tout ensemble* of these remains indicates the same architecture, the same arrangement of rooms and purposes, as are usually found in the well-authenticated Thermæ of *Rome and Pompeii*.

THE THERMÆ OF PARIS.

Little can be said of the Thermæ of Paris,—the external walls, however, are there, supporting a dome: tradition asserts that the Romans built these Thermæ. The columns, cornices, and general disposition of the walls leave not the slightest doubt of the original purpose. It is interesting to find the skeleton building solid, massive, and entire, while in England all such monuments exhibit only the ground floors, and such pavements and ornaments as lead to an inference that buildings so constructed can be no other than those designed for Baths.

"Un assez grand nombre d'objets Gallo-Romano, trouvés à diverses époques sur différents points de Paris ornent aujourd'hui les derniers restes du *palais des Thermes*; et parmi ces objets, ceux qui attirent plus particulièrement les regards proviennent, du monument, qui fut découvert, le 16 Mars, 1711, en creusant sous le chœur de l'église de Notre Dame pour construire le caveau sépulcral des Archévêques. Ce monument composé de *pierres cubiques*, formait selon toute apparence un piédestal de six pieds de hauteur environ, et l'on a tout lieu de croire qu'il était accompagné de deux petits autels. L'inscription votive s'est conservée jusqu'à nous, et peut se traduire ainsi : "Sous Tibère César Auguste les hauts parisiens ont publiquement élevé ce monument à *Jupiter* très grand et très bon." Les figures sculptées sur les pierres représentent, les unes des hommes armés dans lesquels on a cru reconnoître des peuplades gauloises. Voisines de Lutèce, les autres des divinités romaines telles que Castor, Pollux, Jupiter, Vulcain, Venus, Mars, et des divinités barbares dont on n'a du reste jusqu'ici donné aucune exemplification satisfaisante : quoique en général très défectueux sous le rapport de l'art, les objets réunis dans le musée des Thermes ne doivent pas moins être placés au premier rang de nos trésors archéologiques, puisqu'ils sont comme la salle même qui les renferme, les seuls vestiges de la Lutèce parisienne, que le temps ait laissés arriver jusqu'à nous."

THERMÆ OF BUDA, IN HUNGARY.

There are now in the ancient City of *Buda*, *Thermæ*, consisting of the usual number of rooms—Frigidarium, Tepidarium, and Sudatorium—under a circular domed roof; and around the walls is the pulvinus, and a series of niches forming a separate Sudatorium—there are also the *alveus pluvius* and *schola* and the sunken *balneum*.

RUINS OF THE *THERMÆ* OF TRÈVES.

Here excavations were made in 1816. The external walls, four hundred feet long, three hundred and fifty feet wide, and seventy feet high, are pierced with two rows of semi-circular windows, encircled with triple rows of tiles, alternate with squared stones. The rooms on the ground-floor were twenty to thirty in number; one of them, a grand hall, the roof of which was supported by two rows of columns, terminating in an apse. In some rooms were vestiges of tessellated pavements: in others, the walls were lined with foreign marbles and frescoes, with wide parallel bands of different colours, on a red ground. In the triclinium was a beautiful fresco painting of Cupid crucified by the Nymphs. A tessellated pavement was found in 1852, of an hexagonal form, enclosing compartments of a similar shape, with the head of Medusa in the middle, filled up with subjects of an aquatic character. The larger contain six pairs of dolphins, back to back, below each pair is a water lily; between them are fishes and storks; the smaller are filled with vases, aquatic birds and plants. J. V. Wilmonsky, in the *Jahresbericht der Gesellschaft für Nützliche, Forschungen zu Trier*, 1853, describes an inscription on a stone, which records that Aurelius Quintus restored the sculpture in *bas relief*, discovered in the largest room—which is about three feet in length and represents Nymphs bathing. The ornamentations, of aquatic plants and birds, anchors and fishes, with that of the Nymphs bathing, are appropriate to Baths,—these circumstances, with the arrangement of the numerous chambers, besides the testimony of tradition, leave no doubt that these extensive ruins are *Thermæ*.

THE STRIGIL.

The Strigil was an instrument invariably used in the Bath, for the purpose of scraping off the perspiration and scurf, especially used by the combatants in the gladiatorial contests, but found everywhere in connection with the Bath. It may be almost asserted that wherever the Strigil has been found, it proves that the building was a Roman Bath or a portion of a Bath. The instrument was made of copper, bronze, iron, silver, and even gold: ivory and bone were sometimes used. Its form was curvilinear, something like a sickle; but much less curved; and occasionally a groove ran round the outer edge to collect the fluids which were scraped off by the thin edge, which was applied to the skin. It required some

skill in its use, otherwise the skin might be abraded. The Strigil has been found frequently in the Thermæ at Rome and Pompeii. A beautiful statue of a young man using the Strigil was discovered in the Bath of Agrippa at Rome.

Frequent reference to the use of the Strigil is made by Roman authors :

“I, puer, et Strigiles, Crispini ad balnea defer.”

“Rubida, curva, capax, alienis humida guttis,
Luminibus falsis auri mentita colorem,
Dedita sudori, medico succumbo labori.”

“Sergomos has misit, curvo destringere ferro ;
Non tam sæpe teret lintea fullo tibi.”—*Martial*.

In Britain, a Strigil has been found in the Baths under the Coal Exchange, and is now in the Library at the Guildhall in London. Two others were found at Bartlow in Essex ; one in the ruins of the Reculvers in Kent, now in the Library of Trinity College, Cambridge ; and one in the baths of Caerleon, now in the Museum of that town—another was found in the ruins of Uriconium.

ON THE *THERMÆ*, BY THE LEARNED BACCIUS.

“In each Bath there were *four chambers*—the *Laconicum*, the *Calidarium*, the *Frigidarium*, the *Tepidarium*—or there were at least three—for this fact cannot be doubted, that baths were not everywhere constructed upon one model, nor with one distribution of chambers ; and this remark applies both to private and public baths. Hence it is that in various authors so great a variety of baths is to be found. Celsus says there were four Chambers. The bathers used to perspire a while with their garments on, in the *Tepidarium*, then to cross into the *Calidarium*, where they perspired more freely, having undressed : then they returned into the warm or tepid chamber, and thence went into the cold one. Galen mentions the same number of chambers, beginning with the *Tepidarium*. He says, when they first go in they remain in a warm atmosphere, then they pass on into a hotter room, in which was placed what ought properly to be called a *Loutron* or a *Labrum*. From this, they went into the third or cold room ; and at length into the fourth, the *Apodyterium*, where they wiped off the perspiration ; in which room Celsus also says that they who had but just before bathed were wont to wipe and anoint themselves—an arrangement we find to have been observed in those baths, of which we have any remains. A *Laconicum*, for the purpose of perspiration, is found in each angle of the front of the building, and that not of any great size, nor was it absolutely necessary for all parties, as with some sufficient exercise had been gone through to enable them to sweat freely : it was confined to those who were too infirm for exercise. It derives the name from the Lacedæmonians, of

whom Plutarch, in the *Life of Alcibiades*, testifies that they first adopted this system. The Greeks sometimes called it *Pyriatherium*, and some the *Hypocaustum*. The Romans sometimes call it the *Calidarium*, sometimes the *Sudatorium*, but often it was called the *Laconicum*. Suetonius, in the *Life of Vespasian*, calls this part the *Spheristery*, from the rotundity of its shape, it was an arched circular room, having, according to Vitruvius, a light in the dome, and from it depended a brazen shield, with chains, by means of which, being hauled up or drawn down, the temperature of the sweatings was regulated, the heat being thus retained or dispelled. The reason of this introduction was, says Dion, in his *Annals*, that on entering in this chamber the bathers might perspire freely, and the anointing having been applied they should immediately descend into the cold room. This fact will appear more clearly from Galen by and by, and it is accidentally alluded to by Martial, on the Baths of *Hetruscus*, in three verses to *Oppian*. "If the method of the *Lacedemonians* delight thee, thou canst cheerfully be plunged in vapour in the *Raw Virgin* or in the *Martial*." But the air of the *Laconicum* seems to have been dry and caused by fire, yet that it could be made to partake of the hot steam of water. Further—Celsus says, that in it the perspirations were dry, elsewhere he said that the bodies were thoroughly dried. Seneca says they were heated to faintness; Galen and other physicians that they were sometimes parboiled; Oribasius clearly declares that the air was very hot in the *Laconicum*. From the *Laconicum* a door opens into the *Tepidarium*, which properly contained the *Loutron* or the washing room, and, by the evidence of Galen, also the hot chamber. This room was extensive,—twice the size of the other chambers; the heat in it was less, and its use more general, especially among the weak and infirm. Here we must remember the words quoted from Celsus, that they descended into the hot room or into the warm room, as it could be moderated in temperature according to the fancy of the patient. Galen elsewhere seems to assert the same thing, where he says that in the warm chamber, the water, by means of vessels, whether warm or hot or cool, could be regulated for use in a threefold manner; it could be made temperate, or warm, or hotter than ordinary. But this variety of temperature I do not comprehend how it could be effected in public baths, though it could in private baths. For in public baths the water's temperature was regulated by the superintendent for the use of the people, as is proved by the authority of writers, who call some baths cold, others temperate, others hot. Then in the third place, there was the *Frigidarium* or cold room, in which the temperature was extremely cold, for this express purpose, says Galen, that when the bathers had been made very hot, whether in the preceding chamber or by means of exercise, here they might be refrigerated and the vigour of the body be restored, the skin being hardened. For those, he adds, who did immediately descend into the cold chamber in this way from their ablutions in the *Tepidarium* and from their perspirations in the *Laconicum*:—shortly after their perspiration had become too profuse, they felt their body become very cold: this was prevented by the bath in cold water, which, contracting

and binding up the whole body at the same time, as happens to heated iron, which, when it is plunged into cold water, is both cooled and hardened; and for this reason especially it is evident that baths were introduced, viz., for the strengthening of the bodies of invalids, that is, that they should first warm their weak bodies, and thus prepare them for the cooling room; and to such an extent has the use of cold baths always prevailed, that some persons scarcely use any other. Cermis, a physician of Marseilles, as Pliny writes, having condemned all former medical men in the use of hot baths, prescribed to his patients to bathe in cold water even in the depth of winter. He plunged the sick into lakes—we have seen old men of Consular rank, shivering for a long time in the public gaze. From the cold room the exit was into the Apodyterium or Spoliatorium or undressing room, and this was the finale of the whole process. But after the Tepidarium they entered, it seems, the anointing chamber; the same, probably, was the barber's shop, where oils and ointments and scents for ready use were kept, and those who chose, dressed their beards and the hair of their heads. This part was a necessary or essential one as they call it in every system of Baths, and this custom was the most common of all; because every man who had had a bath, used at least, the anointing of common oil, both that he should check perspiration and also might be exempt from injury in walking out again in the open air. You will notice this regulation in all the authorities which have been cited from all quarters. First we read of exercise, then a bath, where friction was used; then ablution, then a bath in cold water; afterwards, meat and drink, then sleep. But to return to the Baths: the beginning and the end of the baths was the Apodyterium, returning thither, where they had hired the bathing vestments. The same thing also is evident from the words of Galen. For while they lingered here, and were wiped, the body was cooled without injury and without artificial means, and thus was restored to its natural temperature."

THE *THERMÆ* OF TITUS.

The ruins of the *Thermæ* at Rome, built by the Emperor Titus, are perhaps the most beautifully enriched of all the *Thermæ* which have escaped the devastation of Time, the destruction of barbarians, and the conflagrations of accident. Independently of their magnitude and grandeur,—and the surpassing richness of the fresco paintings, mosaics, and statuary which embellished them,—the historical circumstances with which they are connected give them a pre-eminence over the others to the British reader.

A sketch of the life of the Emperor Titus will augment the interest taken in a narrative of the construction of those noble *Thermæ* which are called by his name. The Emperor Vespasian had been sent to Britain as a general of the Roman forces, and had built numerous forts, villas, and baths in many parts of England, especially in the south and west. It is probable that he built the villas and the baths at Carisbrook, at Bignor, at Cirencester, and those that skirted along the eastern banks of the Severn, at Caerleon, Witcombe, Wroxeter, and Chester. Titus, the son of Vespasian, was, during the residence of his father in Britain, a young officer in the Roman army. It is an interesting coincidence, that the Generals and Emperors who eventually became the great Monarchs of Imperial Rome, had been Prefects or Generals on the soil of Britain, and had, no doubt, a strong interest in the security and welfare of the country, by the permanent buildings they established. Titus was born A.D. 40, and after a short sojourn in Britain, was ordered by his father to proceed to Judea to bring Jerusalem and the Jews into subjection. After a severe contest with the Jews during eight months, the City of Jerusalem was captured and demolished; the temple was pillaged and burnt, many of the sacred vessels and ornaments were carried away; the carnage of the people exceeded the horrors of all former ages; the people perished not only by the hand of their enemies, but by the most dreadful sufferings from starvation and pestilence. Thus was the prediction of our Lord fulfilled, that, “not one stone should remain on another,” in that terrible vengeance. It is stated by historians, that Titus took forty thousand Jews captives to Rome, and that they built those majestic buildings which are still the glory and wonder of Rome—the Colosseum, the Arch of Titus, the Palace, and the *Thermæ* or Public Baths.

Titus received overwhelming plaudits from the Senate and the people when he returned to Rome after his Eastern campaign; a magnificent ovation was decreed to him, public games were celebrated, and gladiatorial combats, which lasted one hundred days, were exhibited in honour of the Conquering Hero. It is said that five thousand ferocious animals—lions, tigers, elephants, &c.—were slaughtered; and that vast numbers of

wretched Jewish captives fell a sacrifice for the gratification of the Romans. Titus did not long survive these splendid honours: he caught a fever, of which he died in the country of the Sabines in the year A.D. 81.

Several remarkable occurrences happened during his short and eventful reign. The prophecy of Christ was fulfilled in the total destruction of Jerusalem. Titus brought to Rome the beautiful Berenice, mentioned in Acts xxv. 23, the sister of King Agrippa and grand-daughter of Herod the Great, before whom Paul had pleaded at the Judgment Seat with impassioned eloquence. Titus assumed the title of *Pontifex Maximus*—the highest title next to that of Emperor, which has been handed to modern times, and adopted by the Popes of Rome. In his reign the Cities of Pompeii and Herculaneum were destroyed, by the burning ashes and lava of Vesuvius; and from the fumes of the sulphureous lava the elder Pliny fell a victim to his rashness, by proceeding too near the burning mountain. The character of Titus has been assailed: in his early life his passion for war rendered him relentless; but after he had assumed the Purple, he became generous and humane, anxious to do his duty, and promote the public prosperity of his country. He was called by his friends “The Delight of Mankind.” An anecdote is mentioned of him that on some day in which he had done nothing worthy of record, he remarked, “*Diem perdidit*.” Titus was considered a good Greek scholar, and wrote Greek poems—(Smith’s Biographical Dictionary of the Greeks and Romans). From the history of Titus, it is not difficult to understand his efforts to distinguish his name and leave to posterity the monuments of his greatness. The Arch, dedicated to him, still remains,—its inner sides are ornamented with the emblems of the Jewish Rites and Ceremonies. The Colosseum, which he built, is the largest and perhaps the grandest conception of the genius of architecture. His palace was built on the foundations of the Golden Palace of Nero,—and the *Thermæ* have attested the power and the skill of the artists of Rome, whose frescoes were admired and copied by Raffaele. The paintings on the walls and ceilings are Greek and Mythological subjects, exhibiting a delicacy and correctness of design, as well as a brilliancy of colour, which show that the Art of Painting was carried to as high a pitch of excellence as the Sister Arts of Architecture, Sculpture, and Poetry.

The Baths of Titus were adorned with the sculptures of Greece as well as the decorative art of painting, and of richly inlaid mosaics. The celebrated Laocoön was found there originally, and carried away by Hadrian to his villa, near Rome. The Belvidere statue of Meleager was there, besides innumerable other statues and busts. The state of the decorative arts in the time of the Cæsars may be inferred chiefly by what has been discovered in Pompeii and Herculaneum—these two third-rate provincial towns were embellished after the example of the palaces and other buildings of the Imperial City—and they enable us to form a tolerably

correct estimate of the talents of the artists of Rome. The paintings on the ceilings and walls of the Baths of Titus and Constantine, though extremely impaired and almost obliterated by the ravages of time, still did preserve, a century ago, those designs and variety of colouring which have allowed the pictures to be copied with great accuracy. Exposed to damp and to the action of the atmosphere, they have sensibly deteriorated and faded; but happily many of them have been preserved for the admiration of posterity. In the work of Monsieur Ponce, a rare work, which fortunately I found in Paris, there is a copious account of the paintings. The striking analogy of many of them to those in Pompeii is obvious—they portray similar events, scenes and ideas,—the same mythology and poetical sentiments pervade them, though several depict scenes of life, exhibiting the sensuality of the people, as well as the want of refinement and delicacy among Gods and Goddesses, Nymphs, Fauns, Satyrs, and Monsters.

Monsieur Ponce has made a remarkable collection of the principal paintings, and gives a resumé of the subjects, drawn largely from the Greek poetry and mythology: these paintings were chiefly discovered during the Pontificate of Leo the Tenth,—hence Raffaele frequently availed himself of the opportunities of learning the style of the arabesques which are mingled with other portions of the designs. Every variety of minute ornament enriched the cornices, the friezes, the panels, the ceilings, and the pavements, with such beauty and effect, that succeeding ages have been content to adopt them as models of whatever is elegant, and to apply them to modern buildings. Besides these paintings, and a prodigious collection of Statues of the Gods, Emperors, Philosophers, Statesmen, and others, the walls were of the finest marbles, brought from different countries—the verd-antique, from Persia and Numidia; the rose-antique, from Egypt; the Giallo-antique, from Sienna; and the pure white from Carrara and Greece: granite and porphyry and every description of stone was used to give variety and magnificence to the Bath, so that it became the most beautiful, and the most frequently resorted to of all the public buildings. It became the Clubhouse, the Opera, the Casino, the Restaurant, the great place of enjoyment.

Among the compartments or sections of one of the ceilings is a representation of *Bacchus*, sitting under a circular canopy, surrounded by Nymphs, and a boy, offering a libation of wine out of a flagon, shaped like a horn with its narrow end cut off: the figures are almost of the natural size. The draperies are green, violet, and blue. The youthful Bacchus, with cup in hand, is full of grace, and seems abundantly happy in the presence of the Nymphs, who encircle him. Leaves of the vine and ivy adorn his temples, by which Bacchus is always distinguished. Another picture seems to indicate the departure for, and the return from, War—an athletic young warrior is holding in and curbing a prancing war-horse, full of fire; a

war-chariot is close by, and two attendants are ready to obey the orders of the soldier: the other portion of the group represents the return from War—the warrior is dismounted, with a shield in his hand, resting on the ground; the horse is in the attitude of repose, and the attendants seem “standing at ease.” A contiguous painting represents the story of the Rape of Hippodamia by the Centaurs, on the day of her marriage with Pirithoüs, as described by Ovid: this is an elaborate design. The fair lady, half-nude, is in an agony of dismay! her hair is dishevelled, her left hand extended to heaven, and with her right she is resisting the Centaur, whose arm grasps her body. Her lover, Pirithoüs, close by, is enraged; he places one foot on the back of the Centaur, his right hand seizes the back-hair of his enemy, and his nerved and uplifted arm threatens to wreak his vengeance on the disturber of his happiness; an attendant at her back holds a dubious position—he may be assisting her from the attack of the Centaur, or helping to capture her—and a young Nymph, frightened out of her wits, with outspread arms, is hastening away from the scene of terror. This design is full of animation, and well expresses the tenacity of purpose of the Centaur, regardless of blows, the despair of the damsel, and the furious rage of Pirithoüs. Virgins with both hands are holding the tails of goats, on both sides; and medallions of heads intervening, form the border of the compartment.

The painting in another apartment appears to indicate the Ceremonies of a Wedding: it is composed of three groups and nine figures, with the ever-present Cupid, who patronizes these celebrations. The principal characters are a male and female sitting together on a couch,—they are well dressed, in blue and emerald green: the female lifts up her hand in admiration or astonishment of the action and attitude of five persons, who are probably actors. It was customary for players to attend weddings and to divert the minds of the lovers. Two of these figures are nude—one, of exquisite form, is the speaker or singer, who takes the prominent part. Griffins, geese with perpendicular wings, and arabesques, form the border.

A painting in the annexed series represents a youth, riding on a horse, which seems in a flying attitude, though, unlike Pegasus, it has no wings. The youth, perfectly nude, holds the mane of the horse with one hand, and in the other, has a chaplet of laurel leaves, as if he were the conqueror in the Circensian games. Horse-racing and chariot-racing were among the amusements of which the Romans were intensely enamoured; and they devoted a large portion of their time to these exciting recreations. The games of the circus are delineated in mosaics in the Baths of Caracalla at Rome; in a splendid mosaic found near Lyons; in a mosaic at Italica in Spain; and at Horkstow in Lincolnshire.

A picture in a different section depicts the Cyclop Polyphemus sitting nude on a rock, playing the Pandean pipes, before a Muse, in a violet dress,

who is resting with her elbow on a pedestal : this is a simple but elegant picture. The story of the next picture is not clearly made out : some have thought it Lucius Papirius interrogated by his mother—Lucius is quite a youth : his mother, sitting on a stool and leaning forward, with her left hand on his head, is evidently earnestly addressing him—his inclined head implies attention and obedience to her authority : at a little distance a nude standing figure—probably the father—with his left knee on a cushion, his right arm extended and the palm open, betrays his astonishment at the interview between the mother and his son. In an apartment called the Gallery is a grander exhibition. It represents Rhea Sylvia, accompanied by the God of Sleep : Mars, in the clouds, surveys the beautiful virgin. Numitor, driven from his throne by Amulius, occupies a corner of the picture. The charming vestal, half naked, lies asleep unconscious of the love-stricken Mars ! captivated by her beauty—there is the careless “abandon” and repose of the virgin ; while Somnus, with the poppy in his hand, her guardian protector, lifts her veil to exhibit the elegance of her form. Mars, equipped with helmet, shield, and spear, is gazing on her with rapture ; his natural instinct for War softened by the tender influence of Love. Numitor, at a distance, enraged, and jealous, closes his fists. By the side of the last picture is one of an entirely different character, which transfers the theatre of love to the less poetic display of agricultural life at harvest time. An ancient two solid-wheeled cart is yoked to a pair of oxen, the cart is laden with the fruits of industry and of the season ; a quantity of grapes, melons, pumpkins, and sheaves of golden wheat fill the cart : a young woman, sufficiently *enbonpoint*, seems carefully arranging the bunches of the purple grape on the top of the straw : a man at the head of the yoke conducts the team—another man, denuded of unnecessary clothing during the hot weather, seems to have a press in his hand, and a large wine vat stands close at his feet—emblems of his occupation. This picture portrays the homage of ancient times to Bacchus and Ceres, the guardians of agriculture, whose two chief botanic productions were the Wheat and the Grape—the food and the beverage of man. The rotund fleshiness of the female contrasts well with the masculine development of the two men. The border of this representation of natural bucolic life consists of a series of dolphins and men, two of each standing and lying down, alternately.

It is by no means easy to give a description of all the pictures found on the walls and ceilings of the various chambers—some of them were probably the creations of the fancy of the artist, and had no reference to any historical or mythological subject. One of the pictures presents considerable difficulty : there is a group of four figures—a muse playing on a tambourine—a youth, nude, with a patera or saucer offering her some refreshment—a naked boy, with a long stick in his hands and a sort of bag suspended at its upper end : there is beside, a draped female, who has no attribute.

We now approach a more poetical region, where Mars and Venus are entwined arm-in-arm. Mars, entirely nude, is portrayed in the pomp of military weapons, with helmet and shield and spear. Venus, half-robed, with the loose flying palla, which she gracefully holds in her hands, is turning her face towards Mars, who reciprocates the expression of mutual endearment. A border of vine-leaves, and an outer border of long-necked panthers and scrolls, with Centaurs in the corners, encircle the picture. In a contiguous chamber is a more complicated subject, in which there are ten human beings, a horse, and two dogs,—the design is admirably grouped, and narrates the love-story of Venus and Adonis. The lovely youth has penetrated the heart of the Queen of Love, sitting in conspicuous sadness, in her chair of state, with three attendants distressed at her grief,—one, faithful to her mission, supplicates the adored youth to restrain him from his intended hunt and to go to the arms of his infatuated mother. Adonis is deaf to entreaty, love and beauty have no charms for him—his passion is not for the fascinations of female witchery, but for the chase; his charger is ready to be caparisoned, dogs are gamboling with the horse, his companions are preparing to join him in the excitement and exhilaration of a noble but dangerous pastime; for his chivalrous enterprise eventually costs him his life, as he was slain by a wild boar which furiously attacked him. The worship of Adonis was common throughout the shores of the Mediterranean. A small room close by, contains a drawing—the subject is supposed to be taken from a story of the Eleusinian mysteries; contiguous to it is a painting of a Sacrifice to Pomona, who is placed on an altar, with a staff in her right hand,—a worshipper offers fruit in a basin or vase: a basket lies at the foot of the altar. In a side gallery is a procession: an old man is represented with sea-weeds about his head and an oar in his hand, the usual personification a River. The next figure personifies Ceres or Pomona, if we may draw the inference from the leaves on her head and a bunch of grapes in her hands. The third is a female, with raised torch, which indicates Life: an altar, surmounted by columns, is in her rear. Two graceful figures in the air, of Bacchus and Ariadne, are found on the ceiling. A rich border of grapes and vine-leaves adorns the frame.

A magnificent painting in fresco is replete with a lively interest,—it is termed the Marriage of the Aldobrandini, from the name of the palace of that family. The figures are full of grace and expression. The wife sits on the nuptial bed,—her demeanour is modest; her maid, on her side, with myrtle bound on her forehead, invites her to receive her husband with joy. A handmaid of marriage sits behind the nuptial bed and seems to listen. Another maid, half-dressed, bears the articles of the toilet,—a little farther are three females around a basin placed on a column. On the other side of the picture are a singer and a player on the lyre, chanting an epithalamium. A rich border of mermaids, griffins, and goats, with arabesque terminals and medallions of heads, and four figures of Minerva, with helmet and shield and owls, which are sacred to her, surrounds the painting.

In the work of Petro Santo Bartolo, entitled, "*Picturæ Antiquæ Romanorum*," is a grand design of the ceiling of one of the apartments in the Baths of Titus. It is dedicated to Bacchus, who is seated on a rock, as usual, with those accompaniments which always distinguish him: he is sitting on a panther skin—ivy and vine-leaves encircle his brows—bunches of grapes are in his hand—he is youthful, buoyant, and happy: two companions support him, for he seems inclining out of the perpendicular, and perhaps has lost his equilibrium!

In a remarkably elaborate design of a ceiling in these *Thermæ* of Titus, a variety of the richest patterns of Greek scrolls, frets, and guilloches forms the framework of numerous pictures—which are very varied: in medallions there are Europa and the Bull; the Centaur; Cupids riding in cars, drawn by peacocks; stags, goats, griffins, and other animals.

A picture represents the Birth of the Indian Bacchus: a nude Mercury, with wings on his cap, announces the happy event: the child, closely enveloped in swaddling clothes, bound up like infants are even now in Germany and other countries, is presented by a nurse. The mother is reclining on a couch, her right arm on the pillow, and the left raised by a servant; while the nurse, kneeling, is holding the child; another female, with a basket, is ready to receive it: a vase and flagon with two long upright handles are on the ground.

Another picture is surrounded by a rich and elaborate border, in which are peacocks with expanded tails, winged Cupids, half-bodied, resting in *pateræ*; heads of Medusa in the corners; bacchantes and arabesques fill up the interspaces. In a section is a curious representation of the ancient game of the *Pila trigonalis*—a game in which four naked youths are playing, each with two balls: the players throw up the balls alternately, and catch them with rapidity. This exercise was recommended by the Physicians to invigorate the muscles and induce a gentle perspiration preparatory to entering the Bath—hence this game was an appropriate design for a Bath. The same design has been found in a Bath at Pompeii. Another picture represents Bacchus, who is painted in a variety of attitudes—sometimes nude, sometimes draped. Here he is sitting half-draped, in flowing robes, holding a long pole, with a bunch of grapes attached to his right hand; on the left are attendant Nymphs, nearly nude, with flowing garments in their hands: these figures are extremely well drawn and in graceful attitudes, with benign expression; a border around this painting is composed of oxen's heads and pelicans; human heads are seen in the corners, relieved with scrolls and arabesques.

The next painting is that of Apollo—nude, his ringlets flowing over his neck and shoulders; he is sitting; a garment is at his back and his feet rest on a block of stone; his right hand sustains a harp with four

strings, his left hand is raised on his head; beside him stands a golden vase; the border consists of a series of Cupids, the lower half of whose body terminates in arabesque scrolls: they are feeding goats; medallions of Gorgon's heads are in the corners.

Adjoining is a figure of the goddess of fruit—Pomona; she is sitting on a chair with a high back, and fully draped; in her left hand rests a staff with a bunch of fruit, her right hand holds her garments; at her feet are two golden vases—the one with two handles is the two-eared jar or Diota, thus alluded to by Horace in the ninth ode of his first Book:—

“Atque benignius
Deprome quadrimum Sabinâ,
O Thaliarche, merum *diotâ*,
Permitte Divis cœtera.”

The colouring of the frescoes, ceilings, and walls, exhibit the finest perception of the laws of harmony. The Romans seldom employed masses of strong and brilliant colours; they seemed fond rather of the secondary and tertiary colours—they evidently understood the difference between the contrast and the chastened harmony of primary and secondary shades. They must, however, have been regulated and limited by the colours they possessed—hence the number of their shades of colour is comparatively small. They were extremely fond of a cherry red, a chocolate or maroon red, of blue, and the shades of brown. The ceilings were far more elaborately enriched, and oftener tinted with gold, than is the custom in modern decoration. It is, however, to the examples of Roman grandeur and the correctness of their taste that modern architects are indebted.

Other paintings have been found in the Thermæ of Titus, of Constantine, the Thermæ near the Circus Maximus, and elsewhere too numerous to mention. Some of these are so remarkable that they deserve a brief explanation, though a general resemblance pervades the majority of the paintings, and they are of nearly the same description as those which have illustrated the manners and customs of ancient times, discovered in the public buildings of Pompeii and Herculaneum.

I am chiefly indebted to the labours and learning of Petrus Bellorius and Michael Angelo Causseus for the further elucidation of my subject—the pictorial magnificence of the Roman Thermæ.—

In the centre of a vaulted ceiling in the Thermæ of Titus, the portraits of a certain man and woman are seen, and of others in circles around the dome. Whose portraits they are it is not possible to guess, as not one of them resembles any member of Titus's family nor Titus whose likeness is extant on coins. They are clad in Roman costume. The women's necks are adorned with strings of pearls, which therefore must have been perforated. The use of these necklaces is hence inferred to have been rather ancient, and mention is made of them by some of the old writers on jurisprudence. Sævola says "a certain person left by will thirty strings of pearls; and the legatee had one string at the time of his death." A much thicker thread surrounds the centre picture, studded with larger pearls.

"Omnis habet sua dona dies, nec linea Dives
Cessat."

The same ceiling is remarkable for the shape of the chariots, to which are yoked stags whose necks are adorned with collars. In a more remote part are seen numberless boys indulging in genial sports. They who are represented at the corners of the arch are steering a barge, pushing it with a pole, or are intent on bathing and fishing; or they are approaching the shore for the purpose of carrying away other boys who stand there clad; other boys sailing past are striking cymbals, and passing on some signal. Near the barges are standing out four Tritons crowned with seaweeds, carrying an immense conch or trumpet on their shoulders, whence Ovid speaks of the "tuneful Triton." In the angles are very small boys with tunics who are engaged in cultivating flowers. In another angle stands a teacher attired with a toga, behind an abacus, near which stands a boy with a short-hooded frock, holding up his right hand, as if reciting from memory. From above are hanging, a token of reward, and an instrument of punishment, viz.: a ferula of very peculiar shape; the reward appears to be a chaplet untied, which the master holds in his hand and

shows to the boy, as if he preferred rather to entice him by prizes than coerce by castigation, in accordance with Quintilian's precept, respecting the education of ingenuous youth. This ferula seems made of wood or leather, or twisted hemp, with which teachers or nurses used to beat children's hands, as may be seen in Juvenal. Here and there are other boys playing together, and imitating priests, as sometimes our own children do; some diminutive altars, adorned with boughs, are erected, upon which seats are attached; that on the right is Diana's; the one on the left, the altar of Venus. To Venus boys crowned with myrtle are offering a cup borne aloft, to Diana various other offerings. That boy is to be noted with a fan before Venus's altar, from which we observe how ancient the use of the fan was even in sacred rites to drive away the flies, lest they should desecrate the offerings. Ovid also mentions the fan among the instruments used in the mysteries of Venus. In the opposite side of the arch, these same rites are going on, but in honour of what Gods, seems uncertain: but if one may conjecture, the symbol affixed to the altars, seems to denote one dedicated to Jupiter, the other to Minerva. For the picture of Jupiter is generally found in a sitting position, as becomes so great a divinity, who is everywhere called the father of Gods. I suspect that in this medallion the boys are driving one of their own number to make him take some oath, for he is strenuously resisting, and they drag him so as to make him touch the altar, as was the custom of those who pledged themselves by vows.

In the ceiling of another room, Jupiter is seen brandishing three thunderbolts: because the ancients supposed that thunderbolts were of three kinds: Servius however makes mention of four sorts,—one that severs limb from limb, one that pierces through and through, one that snatches up, and another that fixes to the ground. According to Homer these were the weapons peculiar to Jove. The Romans sought and obtained lightnings in answer to prayers and sacrifices, and for the purpose of bringing them down from heaven Numa dedicated an altar to Jupiter on Mount Aventine. I should say that Jupiter was depicted here in order that he might avert his shafts from this chamber and direct them elsewhere. In the circumference many sacrifices are represented, and offerings deposited before the statues of the Gods: and in the outer compartment supplications are being made, such as were usual in the case of prodigies, to deprecate the resentment of the Deities, as Livy frequently states that supplications were made in the temple of Jupiter in consequence of many places having been devastated by lightning. The gambols of Tritons are visible not only in the fourth circle but also in the second—elegant beyond description—and from which that exquisite painter Raphael has borrowed much to embellish his paintings in the Vatican galleries.

In the Thermæ of Constantine, several paintings were discovered, similar in character to those in the Thermæ of Titus. One a picture similar in

every respect to a large portion of a very celebrated Mosaic, stated by Pliny to have been placed by Sylla in the Temple of Fortune at Præneste, &c. This most beautiful Mosaic, exquisitely polished, still exists: having been transferred with such consummate skill, that it received no injury by its removal to the palace of Cardinal Francis Barberini, who caused it to be engraved on brass in larger dimensions. In this engraving a barque is seen filled with huntsmen, who are aiming at boars in the distance. A *fac-simile* of this mosaic may be seen in the gallery of John Ciampini. The boar pierced with an arrow, is scampering away, agonised with pain, as may be inferred by his open jaws. Boars are wont very often to cross rivers, if anything accidentally impede their flight when pursued by huntsmen or hounds. On the nearer shore is a dog exhausted with running, and, gasping with heat, seems to be greedily lapping up the water with projected tongue: its figure is not unlike the hound described by Nemesianus, with this only difference, that it has its ears cropped, as is usual in our day. With respect to the boat in this mosaic, it frequently occurs in the designs that have survived, at the stern which is elegantly rounded, an ensign is streaming from a staff, to which parti-coloured ribbons, fluttering in the wind, used to be attached, according to Pollux: both the staff and the streamers are visible here. The use of these streamers was, as we learn from Cicero, that the boatmen might know which way the wind was blowing. In the centre of the boat is a canopy for the owner or the pilot's accommodation. Among other names it was called a *Diæta*. From the upper part of the bow projects a fox's head, as was not uncommon in river boats.

A picture was found in 1710 in the Thermæ of Constantine, representing a river god, lying on the ground, resting his hand on a pitcher, at the bottom of a mountain, apparently to denote that great streams have their source from the highest rocks. Who the woman represents (whom a satyr is approaching to do her some mischief), whether she be also a river deity, is open to conjecture.

Another picture was also found in the same Thermæ of Constantine. In it are several temples and appliances used in the worship of the Gods by the ancient Romans. A temple of an elegant form, constructed on the principles of Grecian architecture, is situated in the back ground; attached to it is a portico similar to that of the Pantheon, which is built in the style of the Corinthian order.

The second temple is circular, perhaps because it was dedicated to the Sun; it presents at all events the rotundity of the Sun, and is furnished with twelve windows, which seem to typify the twelve months of the Zodiac, in which the Sun performs its annual orbit. A portico is appended, of a simple design, but not altogether devoid of elegance. The third temple, of a square form, seems to be without any roof, or perhaps rather it is a shrine or chapel only, "a small building with an altar dedicated to a God."

An elegant mural painting was found on the Quirinal Mount, in the Thermæ of Constantine. From its elegance the work seems to have been more ancient, because the artificers of this class of painting were very unskilful in the reign of Constantine. It is therefore difficult to assign its correct date. Pliny tells us that it was in the reign of Augustus that excellent mural paintings were introduced. This picture represents a sacrifice, as is clearly intimated by a priestess standing by with veiled head, holding a patera in her right, and an incense box, or something similar, in her left hand. Libations were poured upon the sacrifices, as is here manifest. This also is implied by the presence of two other females with cinctures and chaplets, one of whom carries a lighted torch, and a dish filled with flowers; the other a globe in her left hand. As there is no statue visible, I should infer this was a sacrifice to the Manes of some deceased person, as we read in Ovid and Horace. Here too, close behind the priestess, a sepulchre is visible, from which a veil is hanging, and upon it stands a funeral urn.

“Parva petunt Manes: pietas pro divite grata est
 Munere: non avidos Styx habet ima Deos.
 Tegula projectis satis est velata coronis,
 Et sparsæ fruges, parcaque mica salis:
 Inque mero mollita Ceres, violæque solutæ
 Hæc habeat media, testa relictæ via, &c.
 Hunc morem Æneas, pietatis idoneus auctor,
 Attulit in terras, juste Latine, tuas.
 Ille patris Genio solennia dona ferebat
 Hinc populi ritus edidicere pios.”

Ovid, fast. lib.

Near the Circus Maximus was found a beautiful Mosaic Pavement, in an ancient bath, of white and black tesserae, thirty feet square, elegantly ornamented with various marine subjects. This bath was placed under the tutelage of Neptune, and dedicated to him, as is evident from the Circensian or Neptunian games, in mosaics on the walls, exhibited in the three following representations. It was discovered in 1670, in a garden once commonly called Carciofolo, on the left of the Appian way. The square in the middle of the pavement was for the purpose of letting out the waters of the bath through its apertures. The chief figures are those of an Amphitrite, with a veil thrown over her head, and three Nereids, each sitting on a marine horse. Tritons, dolphins and fishes are sporting at the feet of the Nereids. The subject shows it was dedicated to Neptune. The three-pronged trident denotes three attributes of water; it was liquid, fructifying or fruitful, and drinkable. The dolphin was Neptune's most beloved fish, because he is represented either in Neptune's hand or at his feet. The drapery expanded over the females' heads shows them to have been sea nymphs.

The Romans were evidently fond of marine representations, and especially of fabulous animals; almost every known marine animal was depicted, with the terminations of fishes' tails, and particularly the caudal extremities of dolphins—hence Mermaids and Tritons and Nereids were furnished with those appendages. Other animals, horses, bulls, and griffins, are honoured in the same manner as the Mermaids. Paintings and mosaics of this description have been found among the Greek mosaics of Halicarnassus and other places in Italy, mentioned by Ciampini and Furietti, and also in Britain at Cirencester, Witcombe, &c.

CONCLUDING OBSERVATIONS ON THE USE OF THE ROMAN BATH.

It is singular that a practice so ancient as that of the Roman Bath, which was in common use for many hundred years in all the most civilized countries of Europe, and still extensively practised by all Mahometan nations, has been almost entirely abandoned by Western Europe. The Turks and other Oriental nations still adhere to the customs of their forefathers, bequeathed to them by the descendants of the Greeks and Romans: no small legacy to bequeath! and no small boon to the people which had the good sense to adopt, almost as national, so valuable an inheritance.

Among the Turks it has been the great means of cleanliness, and of cultivating the enjoyments of social life, and almost answered the purposes of Hospitals.

Unquestionably the frequent use of the Bath, whether Hot-air or Vapour, has been long practised by the Slavonian races, by the Russians, Hungarians, Poles, Swedes, and Germans; and it is strange, and not readily explicable, that the English and French, the Italians and the Spaniards, have almost entirely discarded the ancient luxury—perhaps because they have invented other means of enjoyment and of personal cleanliness, and substituted the domestic hot-water bath, instead of resorting to the public Thermæ. But in a medical or therapeutical point of view, the hot-air bath claims an attention which is being slowly recognised by the profession and the public, and possesses medicinal and sanitary properties far beyond the ordinary bath of warm water. During the Crimean war, frequent opportunities occurred of visiting the Baths in Constantinople, which are held in popular reputation, not only as a luxury, but as a simple means of curing diseases; and no doubt the Bath has superseded to a great extent the necessity of building dispensaries and hospitals, for the habits of daily life among the Turks are comparatively simple—they drink no intoxicating liquors, and are an abstemious people; the ordinary classes of diseases to which they are subjected, are much under control by the frequent use of the Bath. The Bath is as essential to the welfare and happiness of the Turks, as the enjoyment of their Chibouk; under the soothing delights of coffee, tobacco, and the Bath, they are a temperate, peaceable, industrious, and cleanly people; their minds as well as their bodies are free from the excitement, the fever, and perturbation which disturb other European people; and so far as physical agencies influence the moral and intellectual condition of the Turks, it might almost be said that their calm, grave, and dignified demeanour is the result of their national adoption of Coffee, Tobacco, and the BATH.

In a pamphlet published at Cheltenham in 1860 "on the Sanitary advantages of Baths," I made the following observations on the Structure and Functions of the Skin :—

"The skin covers the whole surface of the body : it is very highly organised—that is, full of nerves and blood vessels, easily seen from the fact that a puncture from the smallest needle will cause pain and produce blood. It is the great organ of *sensation* or *touch*. To the delicacy of the touch we owe much of our knowledge of the external qualities of objects—their smoothness or roughness, their form, softness, or hardness, the perception of heat and cold, and other properties.

"The skin varies in character and appearance in different parts of the body. It is strong and tough in the palms of the hands and soles of the feet ; it acquires immense thickness by use in the rough hands of a boatman or blacksmith ; the soles become like leather in those who never wear shoes, and horny amongst the Arabs and people who frequent the burning sands of the desert. The skin is very elastic ; under the effect of heat it expands ; under the influence of cold it shrinks and becomes puckered up.

"It is highly sensitive to physical and moral emotions. The paleness of terror and the blush of modesty alike evince the connexion of the skin with the brain ; the sight of anything loathsome or appalling will impart an icy coldness and shivering to the skin. Its sympathy is equally manifest, in health and disease, with the functions of the heart, lungs, and stomach. Mental agitation will induce palpitation of the heart and flush the cheeks ; rage, which crimsones the skin, chokes the breathing. These are evidences, which might be multiplied, to prove the cutaneous sympathy with every other organ of the body. The actions of the skin, bowels, and kidneys are vicarious.

"If an organ has such complexity of organisation, and extends over so large a surface, performs so highly important a function as *perspiration*, and is endued with properties which excite such exquisite physical, moral, and mental associations, its healthy condition demands our greatest attention. It is rarely that we trouble ourselves with the phenomena which the varying conditions of skin are capable of suggesting to the reflecting mind.

"The science of Physiognomy intimately depends on the ever-changing phases of the muscles and the *complexion* ; the colour and appearance of the skin of the face constitute an index by which the physician recognises the state of the mind and body in health as well as in disease. The complexion is a sort of barometer, which indicates the pressure of the thoughts, the emotions, and the sentiments—which tells, with unerring precision, the expression of suffering or of joy. To the poet, the painter, and to the physician, it offers a field of observation of the highest interest.

"Over the true skin there is spread a thin layer of membrane, which is called the *cuticle* or *scarf skin* ; it is extremely fine, it adheres with great tenacity to the *true skin* below, and can be, with some difficulty, detached from it ; the raising of a blister shows how distinct it is,—decomposition from burns or death, and even friction, makes it peel off very readily. Although *inorganic*, it is very strong, and closely binds down the true skin. Its surface, under the microscope exhibits infinitely numerous and minute *scales*, pierced with millions of *pores*, with valvular openings, invisible to the naked eye, through which the perspiration flows. The *scarf skin*, or cuticle, is being constantly cast off our bodies, in the form of powdery scales almost invisible ; but, these, instead of falling away from the skin, are partially retained on the surface ; they become mingled with the unctuous and saline secretions of the skin, and the whole

unite into thin crusts, which, by their adhesiveness, attract dust of all kinds from the atmosphere, and particles of foreign matter from our dress : so that, in the course of time, the whole body becomes coated with a pellicle of impurities, and thus foreign matters, such as miasmata, find upon the skin a medium favourable for their suspension and subsequent transmission into the body.

"In the ordinary healthy condition of the body the perspiration is as invisible as our breath, but becomes palpably abundant when increased by heat, or exercise, or mental agitation, or disease. The quantity of perspiration is very variable—dependant on weather, climate, the seasons of the year, the occupations of life, and the healthy or diseased condition of the body. A large amount of fluid is given off from the body, as the skin is one of the chief emunctories of the system in carrying away effete matter—it is a great *exhalent organ*. In morbid conditions, where it is either a disease itself or a symptom of some other disease, the excess of perspiration is enormous. In a disease, called the sweating sickness, in consumption, in rheumatic fever, after the hot stage of ague, the quantity is so great as rapidly to exhaust the strength, and reduce the size of the patient to that of a skeleton.

"The perspiration is not mere water ; its taste is saline, from the quantity of saline materials which are dissolved in it, and are constituents of the blood, containing sulphur, phosphorus, ammonia, chlorine, &c. The quantity of perspiration varies from twenty ounces to forty ounces daily, depending upon the atmosphere—whether hot or cold, dry or moist. There is nothing that contributes more to health than a free perspiration, if not in excess.

"Under the *cutis* or *true skin* there are glands, or follicles (little bags), extremely minute, which secrete an *oily* matter : this oil, or fat, is abundant in the dark races, the use of which is to prevent the drying effect of too rapid evaporation of the perspiration in hot climates, which would crack the skin and make it ulcerate, and expose it to the irritation of dust and heat, and consequent pain. You often see the face shining and glossy from the abundance of this oil : it is a salutary defence against the vicissitudes of the atmosphere, from extremes of heat and cold, from too much dryness from the east winds. It is so abundant amongst the negroes, and so odoriferous, as to render the company of that race distasteful to the olfactory nerves of Europeans.

"What a prodigious contrast exists between the exquisitely beautiful skin of an infant and the thick, coarse, brawny hide of a savage, whose skin resembles that of pachydermatous animals—the elephant, the hippopotamus, or rhinoceros. The thickness and thinness of the skin are expressions often used figuratively to imply sensitiveness or obtuseness of moral feelings. It is fortunate, perhaps, that some persons are *thick skinned*, to bear the rubs of life ; since, being *thin skinned*, is as much a misfortune to their physical as it is to their moral or mental organisation.

"The capacity of the skin to endure heat and cold is very considerable. The inhabitants of the Arctic regions have very thick skins ; they are not covered with hair or fur, which protect the polar bear, the fox, buffalo, reindeer, the seal, or the whale. The skin has the power of resisting great intensity of cold ; when the quicksilver of the thermometer is frozen and the spirit thermometer is 50 degrees below zero, man is able to sustain the severity of the Arctic regions. Sir Edward Parry found that his men could endure almost any degree of cold if the air was perfectly still. On the 15th February, 1820, at Winter Harbour, Melville Island, Sir Edward Parry experienced the greatest cold ; the thermometer descended as low as 55 degrees below zero, yet not a man lost his life, nor did the sailors' noses or their feet mortify, though several suffered

partially from frost bite. In the late expedition to the Arctic regions under Captain M'Clintock, the cold was registered as low as 48 degrees below zero, and one man, the engineer, was found frozen in his bed. What made our poor fellows in the Crimea suffer so dreadfully during the winter of 1854, was that they were exposed to the bitterly cold east wind from the snow-clad mountains of the Caucasus, blowing like a hurricane, and frequently wet with rain, and besides, being subjected to hunger and hard work in the cold, wet trenches.

"On the other hand, the skin is capable of supporting an intense degree of *heat*. A Physician of eminence, Sir Charles Blagden, made a series of experiments to ascertain how much heat a man could bear with impunity; he entered heated rooms at a temperature of 200 degrees, but when the perspiration broke out freely, which it is sure to do, immediate relief was experienced, and no particularly uneasy sensation was felt, beyond that of being hot. Some years ago a Frenchman, Mons. Chabert, exposed himself to great heat in a chamber erected in such a manner as to test the capability of bearing heat: he asserted that eggs would fry and that mutton chops would be grilled by the heat. I twice entered that chamber, and went to the farther end and looked at the thermometer, which was standing at boiling point—212 degrees. I suffered some inconvenience in the eyes, and was drenched with perspiration, but felt neither pain nor distress at the time, nor any subsequent inconvenience.

"It is well known that sugar bakers are constantly exposed to a heat upwards of 120 degrees for many hours at a time with comparative impunity. The German sugar bakers are very temperate: they are engaged in their bakeries many years, and are usually a healthy race of men. In the potteries and iron foundries, men are accustomed to the influence of intense heat, yet they generally bear the heat well and are strong and healthy. The shampooers in the Turkish Baths often live to advanced age; they spend the greater part of their lives in the hot chamber; they are subject to great perspiration, but are neither diseased nor rendered prematurely old by their occupation; they eat well, and drink nothing but water and coffee. The experiments of Sir Charles Blagden, Dr. Fordyce, and others proved that, owing to the great rarity of the medium, and to the cooling effects of the evaporation produced by the dry air; air of a very high degree of temperature can be borne with little inconvenience. The power to bear solar heat and to preserve the constitution of man in a healthy tone may be inferred from the immense population of tropical countries."

I take this opportunity of embodying some remarks of Dr. Thudichum, on the Analysis of the Perspiration:—

"The secretions of the human skin may be divided into volatile and solid; for the sake of convenience we include the water that dissolves the solids with the volatile portion, though it is not always entirely so.

"The volatile ingredients are—1. Carbonic acid; 2. Water; 3. Some volatile acid, not yet accurately determined.

"The fixed contents are—1. Urea; 2. Chloride of sodium; 3. Fatty matter; 4. Earthy salts of some fatty acids; 5. Small quantities of some other alkaline salts. Phosphates and sulphates, always present in any other secretion, I have never found in sweat.

"When the contents of perspiration are so arranged as to give the first place to the greater quantity, they take the following order:—Water, carbonic acid, chloride of

sodium, urea, other ingredients. The presence of water and carbonic acid constitutes the analogy of perspiration with the excretion of the lungs; the presence of urea, and chloride of sodium, with that of the kidneys. While the excretions of the skin are analogous to some extent to those of the lungs and kidneys, they are not entirely so, and cannot be substituted for the others. For the kidneys are alone empowered to remove phosphates and sulphates and uric acid from the blood, together with colouring matter; it is the privilege of the skin to remove volatile acid; the lungs are restricted to carbonic acid and water.

"The dignity of the skin as an excreting organ becomes more apparent from a study of the quantities of matter discharged by the several organs. For, while the lungs in twenty-four hours discharge fifteen ounces of volatile matter, the skin discharges thirty ounces; so that two-thirds of all volatile excretions pass by the skin. A more than equal weight of water leaves the body through the kidneys, charged with matter peculiar to the secretion of those organs, particularly urea and chloride of sodium. But a very small amount of carbonic acid leaves by the kidneys.

"The lungs discharge the products of combustion—of warmth-producing food; the skin discharges the final products of the same, together with some mineral food, and the results of food-producing motion (muscle-albumen). The kidneys discharge the products of albuminous food (sometimes called plastic, muscle-forming) in the form of urea and mineral salts, of several of which they are the sole channel of exit.

"If the evaporation prevent the sweat from collecting on the surface of the skin, the solids are deposited in a crystalline form round the mouth of the sweat glands. The urea then soon decomposes, producing carbonate of ammonia, which combines with volatile acid; such ammonia salts constitute the smelling element of sweat, viz., the most repugnant one. Healthy fresh sweat from a clear skin has a most agreeable odour, or none at all.

"Suppression of the action of the skin becomes fatal by the accumulation in the body of carbonic acid; the lungs cannot do the office of the skin because they are too small, because they are only intended to ventilate the blood, and not the tissues, which are so distant and ill-connected with the lungs. To inhale oxygen is their principal function. The ventilation of the bulk of tissue, cellular and muscular, is the duty of the skin.

"Suppression of the function of the kidneys becomes fatal by occasioning the retention as poison in the blood of urea, and those matters which the kidneys alone can excrete. But in cholera and other diseases the skin secretes a fluid which contains enormous quantities of urea. Thus life is prolonged and saved.

"In kidney-diseases, chronic or acute, the bath will cause the skin to do extra duty, and prolong or save life. In all pulmonary diseases, the body need not succumb to retention of carbonic acid. Cholera in the algide state need not any longer be fatal. Typhus and yellow fever may be turned in acme, now we have the means of controlling those of their symptoms or features which have made them so fatal.

"Cancer offers some remarkable features. I found cancer-juice to be full of chloride of sodium. The bodies of cancerous persons contain an excess of this salt. Whatever the relation, cancer and the excess of salt coincide. Is the kidney unable to rid itself of salt because the skin retains its portion? Is cancer of the stomach so common because this organ, surrounded in and outside with chloride, cannot escape its irritating

influence? The cancerous tumour offers features only found in vegetables; alone of all tissues of animals it drains a juice when heated. Here are questions pregnant with results, when investigated. Under any circumstances, the bath will remove conditions accompanying, favouring, or perhaps producing that awful disease cancer. The bath will rid the body of excess of chloride of sodium in the tissues."

I cannot moreover refrain from quoting a few remarks by Mr. Erasmus Wilson, F.R.S. :—

"The medical properties of the Bath are based upon its powers of altering the chemical and electrical conditions of the organic structures of the body, and abstracting its fluids. The whole of these changes take place simultaneously, and no doubt harmoniously; but in certain instances we may rely upon a greater activity of one of these processes over the other two; for example, in neuralgia, the electrical power should preponderate; in the destruction of miasma and poisonous ferments, the chemical power; and in the slow removal of accumulated morbid deposits, as in chronic gout and rheumatism, the fluid abstracting power. The required greater activity of one or other of these powers would also be our guide to those physical conditions of the bath which are calculated to effect these objects—for example, temperature and moisture. The temperature and degree of moisture for the treatment of disease must be different from that which is suitable to health. It may be necessary to have recourse to very high temperatures; or it may be requisite to fall below the healthy standard. Moreover, the healthy standard itself may require variation for different individuals and different constitutions. The physician is perfectly conversant with this necessity of adapting his means to the special constitution or idiosyncrasy of his patient.

"One of the most important properties of the bath is its power of preserving that balance of the nutritive functions of the body which in its essence is health; in other words, preserving the *condition* of the body. The healthy condition implies an exact equipoise of the fluids and the solids, of the muscular and the fatty tissues, of the waste and the supply. This state of the body is normally preserved by a proportioned amount of air, exercise, or labour, and food; but even the air, the exercise, the labour, and the food must be apportioned, in its kind and in its order, to the peculiar constitution of the individual. Those who have ever had occasion to reflect on this subject, must have felt the difficulties which surround it, and have been aware how extremely difficult it is to say what may be faulty in our mode of using these necessities of our existence. If I were asked to select an example, as a standard of the just equipoise of these conditions, I should take the ploughman; intellect at the standard of day to day existence, moderate food, vigorous but not over-strained labour, plenty of air, and plentiful exposure. But who would care to accept existence on such terms as these? Give us brain, give us mind, however ungovernable, however preponderant its over-weight to the physical powers, however destructive to the powers of the body. In a word, we select a morbid condition: our meals, our air, our exercise, our in-door and out-door habits are all unsound; we prefer that they should be unsound; the necessities of our life, of our position, require that they should be unsound. How grand, therefore, the boon that will correct these evils without the necessity for making any inconvenient alteration in our habits! THAT BOON IS THE ROMAN BATH."

And where is the Bath now? The conquering Romans have ceased to be—the Romans are gone—the Roman Bath is apparently lost! May it revive in Britain's land! But here an eloquent author, the Father of the Modern Bath, Mr. Urquhart, helps us in our difficulty—"a people which

knows neither Greek nor Latin has preserved this great monument of antiquity on the soil of Europe, and presents to us, who teach our children only Latin and Greek, this Institution in all its Roman grandeur and its Grecian taste. The ancient Roman Bath lives in its modern offspring the Turkish Hamaum." It is due to the sagacity and perseverance of Mr. Urquhart that the invaluable Therapeutic remedy, the Hot-Air Bath, has been restored to minister to our luxury, and the conservation of our health.

Nor is less merit due to the indomitable energy of Dr. Barter, who has built so many Baths in England and Ireland. It is not my intention to discourse at length on the Physiological action and Therapeutical benefit of the Roman Bath. If any one is curious to investigate all that need be said upon the subject, I refer him, with great satisfaction, to the charming and instructive work on the "Eastern Bath" by Erasmus Wilson, F.R.S.

Having derived great benefit from the Bath during my residence in Turkey, when attacked with severe fever while doing duty in the Hospital at Scutari, I owe a debt of gratitude to a remedy which, humanly speaking, saved my life.

The Roman Bath should be an appendage of every Hospital and Dispensary, of every Gaol and Reformatory, of every Nobleman's mansion, and be established in every town in the kingdom as one of the most useful Institutions of the country.

FINIS.







